STIC Search Report
EIC 2100

STIC Database Tracking Number: 159004

TO:	From:
Michael B Holmes **Location: RND 5A49** **Art Unit: 2121** **Wednesday, July 20, 2005** **Case Serial Number: 10/602627**	**Ruth E. Spink** **Location: EIC 2100** **RND-4B31** **Phone: 23524** **Ruth.spink@uspto.gov**

Search Notes

Michael – Attached is the foreign patent and NPL search for the above referenced case. I tagged a few that I thought might be of particular interest. Be sure to let me know if you would like for me to refocus the search.

Ruth

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Set     Items   Description
S1        349   AU=(TAMURA, R? OR TAMURA R?)
S2         33   S1 AND IC=(G05B OR G06E OR G06N OR G06G OR G06F)
S3         33   IDPAT (sorted in duplicate/non-duplicate order)
S4         30   IDPAT (primary/non-duplicate records only)
File 347:JAPIO Nov 1976-2005/Feb(Updated 050606)
         (c) 2005 JPO & JAPIO
File 350:Derwent WPIX 1963-2005/UD,UM &UP=200545
         (c) 2005  Thomson Derwent
File 349:PCT FULLTEXT 1979-2005/UB=20050714,UT=20050707
         (c) 2005 WIPO/Univentio
File 348:EUROPEAN PATENTS 1978-2005/Jul W02
         (c) 2005 European Patent Office
```

4/5/1 (Item 1 from file: 350)
DIALOG(R)File 350:Derwent WPIX

016871821 **Image available**
WPI Acc No: 2005-196126/200520
XRPX Acc No: N05-161930

Parallel processing method in neural network system, involves transferring manipulated data from secondary chips to central processor, and processing by manipulating data using Brownian motion equations and matrices or Bayes'equation

Patent Assignee: TAMURA R M (TAMU-I)
Inventor: **TAMURA R M**

Number of Countries: 108 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200517647	A2	20050224	WO 2004US11118	A	20040412	200520	B
US 20050090908	A1	20050428	US 2002462323	P	20021114	200529	
			US 2003602627	A	20030625		

Priority Applications (No Type Date): US 2003602627 A 20030625; US 2003462323 P 20030414; US 2002462323 P 20021114
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200517647	A2	E	26	G06F-000/00	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
Designated States (Regional): AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

US 20050090908	A1		G05B-019/18	Provisional application US 2002462323

Abstract (Basic): WO 200517647 A2

NOVELTY - The data manipulated in primary chips (21) is transferred to secondary chips (47) including Brownian motion equations coded for specific entity and vectors that are series of matrices with elements of Bayes'equation for specific entity. The data from secondary chips is transferred to central processor and processed by manipulating data using Brownian motion equations and matrices or Bayes'equation.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for parallel processing neural network system.

USE - For performing parallel processing in neural network system (claimed) used in medicinal, biomedical and chemical fields, and other applications such as drug design, toxicology, business management, earthquake prediction, biotechnology, personnel selection, training and upgrading, air traffic control and management file, global decision making, domestic decision making, crime prevention and detection, food and water supply and demand, weather prediction, oil exploration, environmental pollution, plasma physics, stock market prediction, computer security and aerodynamics applications, using software engine.

ADVANTAGE - Handles large data array that incorporates data from past and present in many fields, and increases the possibility of incorporating the ubiquitous randomness in the real world and integrate data from laboratory and academic worlds. Unique software engine is designed to deal with real world events in any time interval.

DESCRIPTION OF DRAWING(S) - The figure shows the top schematic view of software engine.

input unit (2)
software converter (7)
bus bar (11)
primary chip (21)

secondary chip (47)
pp; 26 DwgNo 2/5
Title Terms: PARALLEL; PROCESS; METHOD; NEURAL; NETWORK; SYSTEM; TRANSFER; MANIPULATE; DATA; SECONDARY; CHIP; CENTRAL; PROCESSOR; PROCESS; MANIPULATE; DATA; BROWNIAN; MOTION; EQUATE; MATRIX; EQUATE
Derwent Class: T01; T02
International Patent Class (Main): **G05B-019/18** ; **G06F-000/00**
International Patent Class (Additional): **G05B-009/02** ; **G06E-001/00** ; **G06E-003/00** ; **G06F-015/18** ; **G06G-007/00** ; **G06N-003/02**
File Segment: EPI

4/5/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX

015669114 **Image available**
WPI Acc No: 2003-731301/200369
XRPX Acc No: N03-584612
Data transmission/reception system has base station to send notification with information regarding allocated channel to requesting and other mobile terminals, such that other terminals selectively download reserved contents
Patent Assignee: NEC CORP (NIDE); FUKUIZUMI T (FUKU-I); TAMURA R (TAMU-I)
Inventor: FUKUIZUMI T; **TAMURA R**
Number of Countries: 002 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20030186704	A1	20031002	US 2003395626	A	20030325	200369	B
JP 2003283422	A	20031003	JP 200287197	A	20020326	200374	

Priority Applications (No Type Date): JP 200287197 A 20020326
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20030186704	A1		46	H04Q-007/20	
JP 2003283422	A		30	H04B-007/26	

Abstract (Basic): US 20030186704 A1

NOVELTY - The radio base station (2) allocates a prescribed channel for a mobile terminal (1) when the mobile terminal requests for an immediate download of the content. The radio base station sends notification including information regarding the allocated channel to other mobile terminals in the radio communication zone, such that each mobile terminal tunes into the channel to selectively download the reserved content.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) mobile terminal;
(2) content server;
(3) radio base station; and
(4) data transmission/reception method.

USE - Data transmission/reception system e.g. CDMA radio communication system, W-CDMA radio communication system, TDMA radio communication system and FDMA radio communication system for transmitting/receiving data such as moving images and music on cellular phone, personal digital assistant (PDA) and personal handy phone system (PHS).

ADVANTAGE - Since other mobile terminals are simultaneously downloading the reserved contents, the user can receive and obtain desired contents at desired time. Alleviates shortage of line capacity for delivering rich contents and reduces communication charge.

DESCRIPTION OF DRAWING(S) - The figure shows the data transmission/reception system.

mobile terminals (1)
radio base station (2)
wireless communication network (4)
transmission/reception system (100)
pp; 46 DwgNo 3/23

Title Terms: DATA; TRANSMISSION; RECEPTION; SYSTEM; BASE; STATION; SEND; NOTIFICATION; INFORMATION; ALLOCATE; CHANNEL; REQUEST; MOBILE; TERMINAL; TERMINAL; SELECT; RESERVE; CONTENT
Derwent Class: W01; W02
International Patent Class (Main): H04B-007/26; H04Q-007/20
International Patent Class (Additional): **G06F-017/30** ; **G06F-017/60** ; H04B-007/00; H04M-003/42; H04M-011/06
File Segment: EPI

4/5/3 (Item 3 from file: 350)
DIALOG(R)File 350:Derwent WPIX

015378826 **Image available**
WPI Acc No: 2003-439764/200341
XRPX Acc No: N03-350953

Insurance contract method e.g. for life insurance, involves storing transmitted information including insurance contract, corresponding to the information received from server

Patent Assignee: NEC CORP (NIDE)
Inventor: KIKUMOTO Y; SAIKI S; TAKAUJI C; **TAMURA R**
Number of Countries: 004 Number of Patents: 004
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20030055767	A1	20030320	US 2002244076	A	20020916	200341	B
GB 2382187	A	20030521	GB 200221683	A	20020918	200342	
CN 1405713	A	20030326	CN 2002142831	A	20020918	200344	
JP 2003168002	A	20030613	JP 2001373351	A	20011206	200348	

Priority Applications (No Type Date): JP 2001373351 A 20011206; JP 2001282840 A 20010918
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20030055767	A1		57	G06F-017/60	
GB 2382187	A			G06F-017/60	
CN 1405713	A			G06F-017/60	
JP 2003168002	A		38	G06F-017/60	

Abstract (Basic): US 20030055767 A1

NOVELTY - The information including the insurance for a new contract, contract change or contract renewal, is transmitted from a portable terminal (100) to an insurance server (200) through a network (400). The information received from the server is stored corresponding to the transmitted content in the portable terminal.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) portable terminal;
(2) computer program product for insurance contract; and
(3) insurance contract system.

USE - E.g. for life insurance, transportation insurance, fire insurance, fiduciary insurance.

ADVANTAGE - Enables the user's to surely and easily manage the insurance subscribed through the portable terminal. Promptly achieves renewal of insurance and change of contract content whenever and wherever necessary through the portable terminal. Performs control based on insurance menu provided, suitably for individual user.

DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of an insurance contract system.

portable terminal (100)
insurance server (200)
network (400)
pp; 57 DwgNo 1/27

Title Terms: INSURANCE; CONTRACT; METHOD; LIFE; INSURANCE; STORAGE; TRANSMIT; INFORMATION; INSURANCE; CONTRACT; CORRESPOND; INFORMATION; RECEIVE; SERVE
Derwent Class: T01
International Patent Class (Main): **G06F-017/60**
International Patent Class (Additional): **G06F-009/06**
File Segment: EPI

4/5/4 (Item 4 from file: 350)
DIALOG(R)File 350:Derwent WPIX

014634409 **Image available**
WPI Acc No: 2002-455113/200248
XRPX Acc No: N02-358899
Facility for responding to information consumer enquires, comprises a **real time inquiry response system using a database having a number of stored responses corresponding to inquires made by the consumer**
Patent Assignee: PROMEO TECHNOLOGIES INC (PROM-N); BAZUHITTSU INC (BAZU-N); SZETO T (SZET-I); TAMURA R (TAMU-I); CHAN S (CHAN-I); SHOEMAKER E (SHOE-I); WU G (WUGG-I)
Inventor: SZETO T; **TAMURA R** ; CHAN S; SHOEMAKER E; WU G
Number of Countries: 093 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200248896	A1	20020620	WO 2001US49271	A	20011217	200248 B
AU 200234055	A	20020624	AU 200234055	A	20011217	200267
JP 2002222302	A	20020809	JP 200145569	A	20010221	200267
US 20020164004	A1	20021107	US 2000255800	A	20001215	200275
			US 200125970	A	20011217	
US 20020174436	A1	20021121	US 2000255800	A	20001215	200279
			US 200125849	A	20011217	

Priority Applications (No Type Date): US 2000255800 P 20001215; US 200125970 A 20011217; US 200125849 A 20011217
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200248896	A1	E	51	G06F-015/16	

Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GR IE IT LU MC NL PT SE TR

AU 200234055	A		G06F-015/16	Based on patent WO 200248896
JP 2002222302	A	23	G06F-017/60	
US 20020164004	A1		H04M-011/00	Provisional application US 2000255800
US 20020174436	A1		H04N-007/173	Provisional application US 2000255800

Abstract (Basic): WO 200248896 A1

NOVELTY - The system for providing demand responses to inquiries made by information consumers (11) includes a database having a number of stored responses (45b) corresponding to inquiries made by an information consumer. Each of the stored responses (45b) contains at least one stored item returnable to an information consumer in response to an inquiry. The returnable item of the stored response is of a preferred presentation media type that most effectively presents the returnable item.

DETAILED DESCRIPTION - A real time inquiry response system (13) receives inquiries submitted by information consumers from devices having a communication interface. Means are provided for correlating the consumer inquiries received by the real time inquiry responses stored within the database . The system further includes device/interface identification means for identifying the communications interface and the communications device. The item of the stored response is returned to a communications device having the communications interface which is compatible with the media type of the item of the stored inquiry response. The media type of a stored item of the inquiry response can further be transformed to a different transformed media type in response to an inquiry requiring the presentation of the item of the stored response in the transformed media type.

USE - Facility for responding to information consumer enquires.

DESCRIPTION OF DRAWING(S) - The drawing shows a block diagram showing the system accessed through a telephone system and the Internet.

Information consumers (11)
Real time enquiry response system (13)
Stored responses (45b)
pp; 51 DwgNo 2/12

Title Terms: FACILITY; RESPOND; INFORMATION; CONSUME; COMPRISE; REAL; TIME; ENQUIRY; RESPOND; SYSTEM; DATABASE; NUMBER; STORAGE; RESPOND; CORRESPOND; MADE; CONSUME

Derwent Class: T01

International Patent Class (Main): **G06F-015/16** ; **G06F-017/60** ; H04M-011/00; H04N-007/173

International Patent Class (Additional): **G06F-017/30**

File Segment: EPI

4/5/5 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX

014367572 **Image available**
WPI Acc No: 2002-188274/200224
XRPX Acc No: N02-142774
IC card recording and/or reproducing device for storing data on IC memory cards
Patent Assignee: SONY CORP (SONY); TAMURA R (TAMU-I)
Inventor: **TAMURA R**
Number of Countries: 006 Number of Patents: 010
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200195244	A1	20011213	WO 2001JP4876	A	20010608	200224	B
JP 2001357357	A	20011226	JP 2000174307	A	20000609	200224	
JP 2001357359	A	20011226	JP 2000177643	A	20000613	200224	
JP 2002007974	A	20020111	JP 2000191615	A	20000626	200224	
JP 2002092554	A	20020329	JP 2000277020	A	20000912	200238	
GB 2369223	A	20020522	WO 2001JP4876	A	20010608	200241	
			GB 20022550	A	20020204		
KR 2002022091	A	20020323	KR 2002701455	A	20020201	200264	
DE 10192476	T	20020905	DE 1092476	A	20010608	200266	
			WO 2001JP4876	A	20010608		
US 20020174286	A1	20021121	WO 2001JP4876	A	20010608	200279	
			US 200269088	A	20020531		
CN 1386242	A	20021218	CN 2001801990	A	20010608	200326	

Priority Applications (No Type Date): JP 2000277020 A 20000912; JP 2000174307 A 20000609; JP 2000177643 A 20000613; JP 2000191615 A 20000626
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200195244	A1	J	134	G06K-007/04	
Designated States (National): CN DE GB KR US					
JP 2001357357	A		19	G06K-017/00	
JP 2001357359	A		17	G06K-017/00	
JP 2002007974	A		19	G06K-017/00	
JP 2002092554	A		19	G06K-017/00	
GB 2369223	A			G06K-007/04	Based on patent WO 200195244
KR 2002022091	A			G06K-017/00	
DE 10192476	T			G06K-007/04	Based on patent WO 200195244
US 20020174286	A1			G06F-012/00	
CN 1386242	A			G06K-007/04	

Abstract (Basic): WO 200195244 A1
NOVELTY - Device provides storing unit for memory cards, card read/write unit and moving mechanism for relatively moving/controlling storing unit or read/write unit to move to position to permit data reading/writing w.r.t memory card in storing unit. Moving mechanism is used to selectively take out memory card stored for data reading/writing. Storing unit permits part of label pasted on memory card to be visible to be read from outside while kept stored.
USE - IC card storage unit with recording and/or reproducing device for storing data on IC memory cards.
DESCRIPTION OF DRAWING(S) - Diagram of IC card storage unit.
IC card (1)
USB connector (29)
pp; 134 DwgNo 4/59
Title Terms: IC; CARD; RECORD; REPRODUCE; DEVICE; STORAGE; DATA; IC; MEMORY ; CARD
Derwent Class: T01; T04
International Patent Class (Main): **G06F-012/00** ; G06K-007/04; G06K-017/00
International Patent Class (Additional): B42D-015/10; G10K-015/04; G10L-019/00; G11C-005/00
File Segment: EPI

4/5/7 (Item 7 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

01886898
SOFTWARE ENGINE FOR MULTIPLE, PARALLEL PROCESSING WITH NEURAL NETWORKS
MOTEUR DE LOGICIEL POUR EXECUTION MULTIPLE SIMULTANEE AVEC DES RESEAUX NEURONAUX
PATENT ASSIGNEE:
Tamura, Raymond M., (5150870), 90 Nakolo Place, Room 6, Honolulu, HI 96819, (US), (Applicant designated States: all)
INVENTOR:
Tamura, Raymond M. , 90 Nakolo Place, Room 6, Honolulu, HI 96819, (US
PATENT (CC, No, Kind, Date):
WO 2005017647 050224
APPLICATION (CC, No, Date): EP 2004775879 040412; WO 2004US11118 040412
PRIORITY (CC, No, Date): US 462323 P 030414; US 602627 030625
DESIGNATED STATES: AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; HU; IE; IT; LI; LU; MC; NL; PL; PT; RO; SE; SI; SK; TR
EXTENDED DESIGNATED STATES: AL; HR; LT; LV; MK
INTERNATIONAL PATENT CLASS: **G06F-001/00**
LEGAL STATUS (Type, Pub Date, Kind, Text):
Application: 050420 A2 International application. (Art. 158(1))
Application: 050420 A2 International application entering European phase
LANGUAGE (Publication,Procedural,Application): English; English; English

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Set     Items   Description
S1       1631   AU=(TAMURA, R? OR TAMURA R?)
S2        258   AU='TAMURA, R' OR AU='TAMURA, R.' OR AU='TAMURA, R.M.' OR -
           AU='TAMURA, RAYMOND M.'
S3        637   AU='TAMURA R' OR AU='TAMURA R.'
S4        895   S2 OR S3
S5         78   S4 AND (NEURAL()NETWORK? OR PROCESS? OR BAYES OR BROWNIAN)
S6         73   S5 NOT PY>2002
S7         53   RD (unique items)
S8          2   S4 AND (NEURAL()NETWORK? OR PARALLEL()PROCESS? OR BAYES OR
           BROWNIAN)
S9          2   S4 AND BAYE?
S10         1   S9 NOT S8
File   2:INSPEC 1969-2005/Jul W2
         (c) 2005 Institution of Electrical Engineers
File   6:NTIS 1964-2005/Jul W2
         (c) 2005 NTIS, Intl Cpyrght All Rights Res
File   8:Ei Compendex(R) 1970-2005/Jul W2
         (c) 2005 Elsevier Eng.  Info. Inc.
File  34:SciSearch(R) Cited Ref Sci 1990-2005/Jul W2
         (c) 2005 Inst for Sci Info
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
         (c) 1998 Inst for Sci Info
File  35:Dissertation Abs Online 1861-2005/Jun
         (c) 2005 ProQuest Info&Learning
File  65:Inside Conferences 1993-2005/Jul W3
         (c) 2005 BLDSC all rts. reserv.
File  94:JICST-EPlus 1985-2005/May W5
         (c)2005 Japan Science and Tech Corp(JST)
File  99:Wilson Appl. Sci & Tech Abs 1983-2005/Jun
         (c) 2005 The HW Wilson Co.
File 144:Pascal 1973-2005/Jul W2
         (c) 2005 INIST/CNRS
File 636:Gale Group Newsletter DB(TM) 1987-2005/Jul 18
         (c) 2005 The Gale Group
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8/5/1 (Item 1 from file: 2)
DIALOG(R)File 2:INSPEC

03796019 INSPEC Abstract Number: C91007329
Title: Identification of membership functions by neural networks
Author(s): Ishibuchi, H.; Tanaka, H.; **Tamura, R.** ; Fujioka, R.
Author Affiliation: Coll. of Eng., Osaka Prefecture Univ., Sakai, Japan
Journal: Transactions of the Institute of Electronics, Information and Communication Engineers D-II vol.J73D-II, no.8 p.1227-32
Publication Date: Aug. 1990 Country of Publication: Japan
CODEN: DTGDE7
Language: Japanese Document Type: Journal Paper (JP)
Treatment: Theoretical (T)
Abstract: Proposes some identification methods of membership functions using **neural networks** . First, the authors propose an identification method of a continuous real-valued membership function using the back-propagation method when the membership values of finite data points are given. The input-output function of an output unit is somewhat modified in order to consider the output of a **neural network** as a membership value. Next, the authors propose a method to identify an interval-valued membership function. The cost function to be minimized in the back-propagation method is replaced by a weighted sum of squared errors. Last, the authors propose a method to identify a membership function of a fuzzy set of type 2. (7 Refs)
Subfile: C
Descriptors: identification; neural nets; set theory
Identifiers: **neural networks** ; identification methods; continuous real-valued membership function; back-propagation method; finite data points; input-output function; output unit; interval-valued membership function; cost function; weighted sum of squared errors; fuzzy set
Class Codes: C1160 (Combinatorial mathematics); C1230 (Artificial intelligence)

8/5/2 (Item 2 from file: 2)
DIALOG(R)File 2:INSPEC

00508369 INSPEC Abstract Number: C73010018
Title: Innovative approach to predictive utilization of medical services
Author(s): **Tamura, R.M.**
Author Affiliation: Univ. Hawaii, Honolulu, HI, USA
Conference Title: Proceedings of the 6th Hawaii International Conference on Systems Science. Supplement p.29-31
Editor(s): Lew, A.
Publisher: Western Periodicals, North Hollywood, CA, USA
Publication Date: 1973 Country of Publication: USA xiv+227 pp.
Conference Sponsor: Univ. Hawaii; US Army Res. Office; IEEE; et al
Conference Date: 9-11 Jan. 1973 Conference Location: Honolulu, HI, USA
Language: English Document Type: Conference Paper (PA)
Treatment: Theoretical (T)
Abstract: Classic methodology for attaining solutions to problems which are not linear in nature has failed repeatedly. Bayesian methodology is essentially non-linear, and it is simulated by the equation for **brownian** motion which describes, and most importantly, predicts future random paths. This equation also permits the consideration of multiple factors with rapid reiteration and multiple regression analysis. (4 Refs)
Subfile: C
Descriptors: **Bayes** methods; biocybernetics; nonlinear systems
Identifiers: predictive utilization; medical services; Bayesian methodology; **brownian** motion; multiple regression analysis; nonlinear systems
Class Codes: C1290L (Biology and medicine)

10/5/1 (Item 1 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

02952262 Genuine Article#: MU155 Number of References: 6
Title: A RANDOMIZED PLAY-THE-WINNER DESIGN FOR MULTIARM CLINICAL-TRIALS
Author(s): ANDERSEN J; FARIES D; **TAMURA R**
Corporate Source: ELI LILLY & CO,LILLY CORP CTR/INDIANAPOLIS//IN/46285
Journal: COMMUNICATIONS IN STATISTICS-THEORY AND METHODS, 1994, V23, N2, P 309-323
ISSN: 0361-0926
Language: ENGLISH Document Type: ARTICLE
Geographic Location: USA
Subfile: SciSearch
Journal Subject Category: STATISTICS & PROBABILITY
Abstract: A randomized adaptive allocation scheme is a design in which the probability a treatment is administered to each patient depends upon the results of the previous patients in the study. Typically, an arm that is doing well is more likely to be allocated to future patients than an arm that is doing poorly. Occasionally, ethical and/or practical considerations suggest that such designs may be appropriate. However, many issues need to be addressed in order to run the trial properly. Among these are studies with more than two arms, the logistics behind the trial, delayed patient response, and inferences drawn from data collected in this manner. This paper demonstrates ways these issues can be resolved, and presents some modifications to the current literature. A simulation study demonstrates the operating characteristics of the design.
Descriptors--Author Keywords: ADAPTIVE ALLOCATION ; CLINICAL TRIAL ; **BAYESIAN** INFERENCE ; PLAY-THE-WINNER
Research Fronts: 92-0297 001 (EXTRACORPOREAL MEMBRANE-OXYGENATION; CONGENITAL DIAPHRAGMATIC-HERNIA; ADULT RESPIRATORY-DISTRESS SYNDROME)
Cited References:
SAS LANGUAGE REFEREN, 1990
BARTLETT RH, 1985, V76, P479, PEDIATRICS
BEGG CB, 1990, V77, P467, BIOMETRIKA
WEI LJ, 1979, V7, P291, ANN STAT
WEI LJ, 1978, V73, P840, J AM STAT ASSOC
ZELEN M, 1969, V64, P131, J AM STAT ASSOC
?

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et      Items   Description
S1      32318   PARALLEL()PROCESS? OR PROCESS?(3N)(SAME()TIME OR SIMULTANE-
             OUS? OR SYNCHRONOUS OR SYNCHRONI?E? ? OR SYNCHRONI?ING  OR SY-
             MMETRIC? OR SYMMETRY)
S2      29604   (PLURAL? OR MORE()THAN()ONE OR MANY OR SEVERAL OR MULTIPLE?
              ? OR MULTIPLICITY OR VARIOUS OR NUMEROUS OR MYRIAD OR SECOND?
              OR 2ND OR PRIMARY OR THOUSAND? ? OR MILLION? ? OR HUNDRED? ?-
             )(3N)(CPU? ? OR PROCESSOR? ? OR PROCESSING()UNIT? ? OR MICROP-
             ROCESSOR? ?)
S3      18097   (NEURAL()(NET? OR SYSTEM? ?)) OR ((MACHINE? ? OR AUTOMAT? -
             OR COMPUTER? ?)()(LEARN? OR TRAIN? OR DECISION()MAKING OR INT-
             ELLIGENCE)) OR NEUROCOMPUT? OR EXPERT()SYSTEM? ? OR ARTIFICIA-
             L()INTELLIGENCE OR AI
S4          1   (BROWNIAN)(2N)(EQUATION? ? OR FORMULA? ? OR THEOREM? ?)
S5         42   (BAYE?)(2N)(EQUATION? ? OR FORMULA? ? OR THEOREM? ?)
S6    4766865   (CONVERT?R? ? OR CONVERT? ? OR CONVERTED OR CONVERTING OR -
             CHANGE? ? OR CHANGING OR TRANSLATE? ? OR TRANSLATOR OR TRANSL-
             ATING OR TRANSLATION? ? OR TRANSFER? OR TRANSFORM?)(3N) LANGU-
             AGE? ? OR C OR COBOL OR FORTRAN OR JAVA OR BASIC OR OBJECT()O-
             RIENTED OR PAS
S7        1631   FUZZY()LOGIC
S8         201   BROWNIAN
S9        2361   BAYE?
S10          1   S8 AND S9
S11         17   (S1 OR S2) AND (S8 OR S9)
S12         17   IDPAT (sorted in duplicate/non-duplicate order)
S13         17   IDPAT (primary/non-duplicate records only)
S14        287   (S1 OR S2) AND S3
S15         42   S14 AND (S6 OR S7)
S16         42   IDPAT (sorted in duplicate/non-duplicate order)
S17         42   IDPAT (primary/non-duplicate records only)
S18         59   (S8 OR S9) AND S3
S19         59   IDPAT (sorted in duplicate/non-duplicate order)
S20         59   IDPAT (primary/non-duplicate records only)
S21         21   S18 AND (S6 OR S7)
S22         21   IDPAT (sorted in duplicate/non-duplicate order)
S23         21   IDPAT (primary/non-duplicate records only)
S24         87   S14 AND MC=(T01-J16C1 OR T02-A04A5)
S25         72   S24 NOT (S13 OR S17 OR S23)
? show files
File 347:JAPIO Nov 1976-2005/Feb(Updated 050606)
        (c) 2005 JPO & JAPIO
File 350:Derwent WPIX 1963-2005/UD,UM &UP=200545
        (c) 2005  Thomson Derwent
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13/5/3 (Item 3 from file: 350)

DIALOG(R)File 350:Derwent WPIX

013883293 **Image available**

WPI Acc No: 2001-367506/200138

Related WPI Acc No: 2001-397737; 2001-397738; 2001-397739; 2001-397742; 2001-464924; 2001-465145

XRPX Acc No: N01-268158

Impairment diagnosis in communication system, uses probabilistic modelling for diagnosing and analyzing impairments in multi- processor **computational architecture, with** multiple Bayesian **hypothesis tests**

Patent Assignee: VOYAN TECHNOLOGY (VOYA-N); TOKYO ELECTRON LTD (TKEL)

Inventor: AGHDAM A G Z; ARAL G; GUDMUNDSSON T; HENCH J J; KANELLAKOPOULOS I ; SHAH S C; SINGH H; TAN Y

Number of Countries: 094 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
WO 200135607	A1	20010517	WO 2000US30858	A	20001110	200138	B
AU 200115935	A	20010606	AU 200115935	A	20001110	200152	
AU 200152872	A	20010703	AU 200152872	A	20001110	200164	
US 6870901	B1	20050322	US 99164986	P	19991111	200521	
			US 99165399	P	19991111		
			US 2000181125	P	20000208		
			US 2000183675	P	20000218		
			US 2000220076	P	20000721		
			US 2000220079	P	20000721		
			US 2000711684	A	20001110		

Priority Applications (No Type Date): US 2000220079 P 20000721; US 99164986 P 19991111; US 99165399 P 19991111; US 2000181125 P 20000208; US 2000183675 P 20000218; US 2000220076 P 20000721; US 99164972 P 19991111; US 99164974 P 19991111; US 99165244 P 19991111; US 99170005 P 19991209; US 2000186701 P 20000303; US 2000215451 P 20000630; US 2000215510 P 20000630; US 2000215543 P 20000630; US 2000711684 A 20001110

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200135607	A1	E	55	H04M-001/00	
Designated States (National): AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW				
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZW					
AU 200115935	A			H04M-001/00	Based on patent WO 200135607
AU 200152872	A			H04L-000/00	Based on patent WO 200147170
US 6870901	B1			H04M-001/24	Provisional application US 99164986
					Provisional application US 99165399
					Provisional application US 2000181125
					Provisional application US 2000183675
					Provisional application US 2000220076
					Provisional application US 2000220079

Abstract (Basic): WO 200135607 A1

NOVELTY - The inventive method includes application of one or more of the following techniques: (i) Compilation of statistical models of physical layers of a communication system; (ii) creating, from general principle deduction, distributions of crosstalk transfer functions; and (iii) storing the models and distributions in a suitable medium for use in diagnosing probable causes of events detected in the system. The method provides control for managing upstream/downstream data. Agents may be implemented in NAMS (Network Access Management System) (1110), access multiplexers (1130) and/or user equipment (1140), e.g. receivers containing modems. Agents include system software modules (1170), embedded in NAMS (1110), and transceiver software modules (1160),

embedded in access multiplexers (1130) and/or user equipment (1140).

USE - For estimating likely causes of communication network disturbances such as crosstalk noise, in e.g. cellular telephone wireless telecommunication networks.

ADVANTAGE - Provides user of such networks with capability to analyze, diagnose and/or compensate for signal interference/impairment, also providing ability to predict/optimize system performance in presence of impairments, so guarding against unforeseen loss of service, e.g. diagnosing probable offenders causing given impairment, by using **Bayesian** estimation techniques, static and dynamic, for statistical parameter estimation and hypothesis testing.

DESCRIPTION OF DRAWING(S) - The drawing illustrates in block diagram form an example system (1105) benefiting from the inventive method of analysis/diagnosis.

pp; 55 DwgNo 11/12

Title Terms: IMPAIR; DIAGNOSE; COMMUNICATE; SYSTEM; PROBABILITY; MODEL; DIAGNOSE; MULTI; PROCESSOR; COMPUTATION; ARCHITECTURE; MULTIPLE; **BAYESIAN** ; HYPOTHESIS; TEST

Derwent Class: S01; T01; U22; W01; W02

International Patent Class (Main): H04L-000/00; H04M-001/00; H04M-001/24

International Patent Class (Additional): G01R-027/28; H04J-001/12; H04J-003/10; H04J-015/00; H04L-012/42; H04M-001/64; H04M-001/76; H04M-003/08; H04M-003/22; H04M-007/00; H04M-009/00; H04M-009/08

File Segment: EPI

13/5/5 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX

010857182 **Image available**
WPI Acc No: 1996-354135/199635
XRPX Acc No: N96-298685
Continuous primary petro-physical variable over regular pixel array spatial distribution modelling method - using Bayesian **updating rule to build a local posterior distribution for primary variable** at each **simulated location**
Patent Assignee: WESTERN ATLAS INT INC (WATL-N)
Inventor: BOER L D D; DOYEN P M; DEN BOER L D
Number of Countries: 007 Number of Patents: 007
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5539704	A	19960723	US 95494603	A	19950623	199635	B
EP 750203	A2	19961227	EP 96304631	A	19960621	199705	
NO 9602613	A	19961227	NO 962613	A	19960620	199710	
CA 2178978	A	19961224	CA 2178978	A	19960614	199717	
EP 750203	B1	20030903	EP 96304631	A	19960621	200360	
DE 69629761	E	20031009	DE 96629761	A	19960621	200374	
			EP 96304631	A	19960621		
NO 318799	B1	20050509	NO 962613	A	19960620	200532	

Priority Applications (No Type Date): US 95494603 A 19950623
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5539704	A		11	G01V-001/40	
EP 750203	A2	E	13	G01V-011/00	
Designated States (Regional): DE FR GB IT					
NO 9602613	A			G01V-000/00	
CA 2178978	A			G06F-019/00	
EP 750203	B1	E		G01V-011/00	
Designated States (Regional): DE FR GB IT					
DE 69629761	E			G01V-011/00	Based on patent EP 750203
NO 318799	B1			G01V-001/36	Previous Publ. patent NO 9602613

Abstract (Basic): US 5539704 A

The method includes assembling in programmed computer including data **processor** , first measurements of **primary** variable at a number of control pixels and second measurements of associated secondary variable at all pixels of array, estimating the mean and variance of Gaussian prior distribution of primary variable from first measurements and estimating the joint probability distribution of the primary and secondary variables from a scatter diagram of the first and second measurements at the control pixels. An as-yet unsimulated pixel is selected at random, estimating the Gaussian conditional probability distribution of the primary variable at the selected pixel by kriging primary data at control pixels within a selected search region encompassing selected pixel.

A unidimensional slice is extracted through the joint probability distribution corresp. to a measured value of secondary data at selected pixel. The posterior probability distribution is calculated in the **processor** for **primary** variable at the selected pixel by taking the product of the probability ratio and the extracted one-dimensional slice, and a simulated value is drawn for the primary variable at selected pixel by sampling at random from the posterior probability distribution. The simulated value of the primary variable is entered into the array at selected pixel as additional control pixel, and the process is repeated until the primary variable is simulated for all pixels of the array.

ADVANTAGE - Method may be extended to array of volume elements or voxols in three-dimensional space.

Dwg.7/7

Title Terms: CONTINUOUS; PRIMARY; PETRO; PHYSICAL; VARIABLE; REGULAR; PIXEL ; ARRAY; SPACE; DISTRIBUTE; MODEL; METHOD; **BAYESIAN** ; UPDATE; RULE; BUILD; LOCAL; POSTERIOR; DISTRIBUTE; PRIMARY; VARIABLE; SIMULATE; LOCATE
Derwent Class: S03; X25
International Patent Class (Main): G01V-000/00; G01V-001/36; G01V-001/40; G01V-011/00; G06F-019/00
International Patent Class (Additional): G01V-001/28; G01V-001/34
File Segment: EPI

13/5/11 (Item 11 from file: 347)
DIALOG(R)File 347:JAPIO

07290550 **Image available**
REAL TIME STEREOSCOPIC VIDEO MATCHING SYSTEM

PUB. NO.: 2002-159023 [JP 2002159023 A]
PUBLISHED: May 31, 2002 (20020531)
INVENTOR(s): JEONG HONG
OH YUN-SOO
APPLICANT(s): HOKO KOKA DAIGAKKO
APPL. NO.: 2001-215685 [JP 2001215685]
FILED: July 16, 2001 (20010716)
PRIORITY: 00 200041424 [KR 200041424], KR (Korea) Republic of, July 19, 2000 (20000719)
INTL CLASS: H04N-013/02; G01B-011/00

ABSTRACT

PROBLEM TO BE SOLVED: To provide a system for stereoscopically matching a video image sequence real time.

SOLUTION: A real time stereoscopic video matching system comprises a video processing unit 12 for converting videos input from left and right side cameras 10 and 11 into digital signals, calculating a prescribed matching cost from pixel pair of one scanning line of the converted digital video signals, tracing a deciding value for deciding a minimum matching cost, and outputting a decided value by prescribed active information for deciding whether it is operated or not as a binocular difference inferred value. Thus, an effect capable of stereo matching real time by **parallel processing** the video image sequence by using an algorithm based on new dynamic programming optimized by a **Bayesian** sense.

17/5/2 (Item 2 from file: 350)
DIALOG(R)File 350:Derwent WPIX

016009838 **Image available**
WPI Acc No: 2004-167689/200416
XRPX Acc No: N04-133696
Handwritten numeral classifier in personal digital assistant, has input/output circuit that outputs recognizing result of scanned image based on synthesis membership degrees generated using membership function degrees
Patent Assignee: LI G (LIGG-I); SHI B (SHIB-I)
Inventor: LI G; SHI B
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 20040008883	A1	20040115	US 200264423	A	20020712	200416	B

Priority Applications (No Type Date): US 200264423 A 20020712
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20040008883	A1		12	G06K-009/00	

Abstract (Basic): US 20040008883 A1
NOVELTY - An extraction unit (10) compresses received data of scanned image to generate feature values based on which synthesis membership function degrees are generated using **fuzzy logic** . An input/output circuit (18) outputs final recognizing result of scanned image based on synthesis membership degrees generated using function degrees. A controller (13) controls operation of unit (10) and generator.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for extraction unit.
USE - Handwritten numeral classifier e.g. current mode very large-scale integration (VLSI) classifier, for recognizing handwritten character in personal digital assistant (PDA), touch-screen appliances in cellular **neural network** .
ADVANTAGE - The real-time signal processing and high speed **parallel processing** of image is performed reliably. The robustness, speed and accuracy of classifier are improved, hence the normalized handwritten digit image is directly classified.
DESCRIPTION OF DRAWING(S) - The figure shows a schematic diagram of the handwritten numeral classifier.
extraction unit (10)
clock generator and logic controller (13)
11-port k-winner-takes-all (k-WTA) circuit (14)
input/output circuit (18)
membership function generator (19)
pp; 12 DwgNo 1/6
Title Terms: HANDWRITING; NUMBER; CLASSIFY; PERSON; DIGITAL; ASSIST; INPUT; OUTPUT; CIRCUIT; OUTPUT; RECOGNISE; RESULT; SCAN; IMAGE; BASED; SYNTHESIS ; MEMBER; DEGREE; GENERATE; MEMBER; FUNCTION; DEGREE
Derwent Class: T01; T04
International Patent Class (Main): G06K-009/00
International Patent Class (Additional): G06E-001/00; G06E-003/00; G06F-015/18; G06G-007/00; G06K-009/62
File Segment: EPI

17/5/5 (Item 5 from file: 350)
DIALOG(R)File 350:Derwent WPIX

014522313 **Image available**
WPI Acc No: 2002-343016/200238
XRPX Acc No: N02-269768
Compiler generating method for converting Java **byte code to native machine code, involves encoding and training** neural network **in integrated circuit, to convert** Java **byte code to native machine code**
Patent Assignee: INT BUSINESS MACHINES CORP (IBMC)
Inventor: NGUYEN C T
Number of Countries: 002 Number of Patents: 002
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
GB 2365164	A	20020213	GB 200029076	A	20001129	200238	B
US 6578020	B1	20030610	US 99455705	A	19991207	200340	

Priority Applications (No Type Date): US 99455705 A 19991207
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
GB 2365164	A		24	G06F-009/45	
US 6578020	B1			G06F-015/18	

Abstract (Basic): GB 2365164 A
NOVELTY - An integrated circuit with a **neural network** is encoded and trained to convert the **Java** byte code (12) to native machine code (14) that is capable of being executed on an operating system platform.
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for integrated circuit chip.
USE - For converting **Java** byte codes to native machine codes using **neural networks** in computer system.
ADVANTAGE - Since the Just-In-Time **neural network** provides quick mapping from byte code to native machine code and involves **parallel processing** techniques, processing time is reduced. The VLSI chip with **neural network** has programmable logic capable of being retrained to map byte codes for new classes to the machine code for new classes.
DESCRIPTION OF DRAWING(S) - The figure shows the block diagram of computing environment and components to convert byte code to machine code.
Java byte code (12)
Native machine code (14)
pp; 24 DwgNo 2/6
Title Terms: COMPILE; GENERATE; METHOD; CONVERT; BYTE; CODE; NATIVE; MACHINE; CODE; ENCODE; TRAINING; NEURAL; NETWORK; INTEGRATE; CIRCUIT; CONVERT; BYTE; CODE; NATIVE; MACHINE; CODE
Derwent Class: T01; U13
International Patent Class (Main): G06F-009/45; G06F-015/18
File Segment: EPI

17/5/6 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX

014433255 **Image available**
WPI Acc No: 2002-253958/200230
XRPX Acc No: N02-196063
Check cycle synchronization system for computer networks, outputs corrected absolute time reference signal which is utilized as internal reference master clock to create discrete clock cycle for computer
Patent Assignee: JOHNSON A (JOHN-I); WALLACE J (WALL-I)
Inventor: JOHNSON A R
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 6324586	B1	20011127	US 98154818	A	19980917	200230	B

Priority Applications (No Type Date): US 98154818 A 19980917
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 6324586	B1		32	G06F-015/16	

Abstract (Basic): US 6324586 B1
NOVELTY - A preprocessor (18) receives timing signals from global satellite system and outputs a corrected absolute time reference signal. The absolute time reference signal is utilized as an internal reference master clock to create discrete clock cycle for computer (24).
DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:
(a) Massive **parallel processing** system;
(b) **Neural network** ;
(**c**) Antenna assembly;
(d) Clock cycle synchronization method for computers
USE - For computer network such as Internet, local area network, wide area network.
ADVANTAGE - Enables computer to be synchronized to the accuracy of atomic clock and hence interaction between the computers is synchronized irrespective of the location of computers in global network and the time delay encountered in Internet is eliminated.
DESCRIPTION OF DRAWING(S) - Shows a schematic view of the timing synchronization system.
Preprocessor (18)
Computer (24)
pp; 32 DwgNo 4/23
Title Terms: CHECK; CYCLE; SYNCHRONISATION; SYSTEM; COMPUTER; NETWORK; OUTPUT; CORRECT; ABSOLUTE; TIME; REFERENCE; SIGNAL; UTILISE; INTERNAL; REFERENCE; MASTER; CLOCK; DISCRETE; CLOCK; CYCLE; COMPUTER
Derwent Class: T01; W06
International Patent Class (Main): G06F-015/16
File Segment: EPI

17/5/14 (Item 14 from file: 350)
DIALOG(R)File 350:Derwent WPIX

011154241 **Image available**
WPI Acc No: 1997-132165/199712
Related WPI Acc No: 1998-100640
XRPX Acc No: N97-109189

Complex data movement method for multiprocessor system - involves transferring data to processor locations in first column of array by passing data through processor located in Mth column of array

Patent Assignee: MOTOROLA INC (MOTI)
Inventor: BELL M; DAVIS J R; GALLUP M G; GOKE L R; WELTY E L; WILES M F
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5603046	A	19970211	US 93144380	A	19931102	199712	B
			US 95506257	A	19950724		

Priority Applications (No Type Date): US 93144380 A 19931102; US 95506257 A 19950724
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5603046	A		129	G06F-013/00	Cont of application US 93144380

Abstract (Basic): US 5603046 A

The method for transferring data in a data processing system includes storing a first data value in a first of a series of processors. The first processor is location in thr Nth row of the array and in the first column. A second data value is stored in a **second processor** which is located in the Nth row of the array and in the Mth column of the array. The first data and second data values are transferred from their respective processors to the interface circuitry and from the interface circuitry to the switch circuitry.

The first data value is transferred form the switch circuitry to a third processor which is located in the first row of the array and in the Mth column. The second data value is then transferred to the **second processor** . If the switch circuitry is used to transfer data to one of the processors located in the first column of the array the data must pass through one of the processors located in the Mth column of the array.

USE/ADVANTAGE - Meets requirements of **fuzzy logic** , **neural networks** and other parallel array orientated applications.

Dwg.2/50g

Title Terms: COMPLEX; DATA; MOVEMENT; METHOD; MULTIPROCESSOR; SYSTEM; TRANSFER; DATA; PROCESSOR; LOCATE; FIRST; COLUMN; ARRAY; PASS; DATA; THROUGH; PROCESSOR; LOCATE; COLUMN; ARRAY
Derwent Class: T01
International Patent Class (Main): G06F-013/00
File Segment: EPI

17/5/15 (Item 15 from file: 350)
DIALOG(R)File 350:Derwent WPIX

011099247 **Image available**
WPI Acc No: 1997-077172/199707
Related WPI Acc No: 1998-297338
XRPX Acc No: N97-064132

SIMD mesh parallel computer architecture for connection to host computer - has master processor element for broadcasting instructions to array of synchronous **-execution slave** processor **elements, each contg. input-output processor section for routing data, and core processor**

Patent Assignee: MASSACHUSETTS INST TECHNOLOGY (MASI)
Inventor: GILBERT I H
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
US 5590356	A	19961231	US 94294757	A	19940823	199707	B

Priority Applications (No Type Date): US 94294757 A 19940823
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 5590356	A		80	G06F-013/00	

Abstract (Basic): US 5590356 A

The Monolithic **Synchronous Processor** (Mesh-SP) **processes** data and incorporates a mesh parallel computer architecture, primarily SIMD, Each Mesh-SP processor node utilizes a single DSP processor element, a large internal memory of at least 128k-bytes, and separately operable computational and I-O processing sections.

The processor element provides data throughput of at least 120 MFlops. The processor is programmed in ANSI **C** and without parallel extensions. A combination of on-chip DMA hardware and system software simplifies data I-O and inter-processor communication. A functional simulator enables Mesh-SP algorithms to be coded and tested on a personal computer.

USE/ADVANTAGE - Combines high data throughput with modest size, weight, power and cost. Facilitates software development. Mesh-SP appears to programmer as single computer which executes single program, reducing programming complexity. Mesh-SP is programmed to solve wide variety of computationally-demanding signal processing problems, e.g. three-dimensional graphics or multi-dimensional signal processing, **neural networks** , tomographic reconstruction, large Fourier transforms and solving linear equations.

Dwg.1/15

Title Terms: SIMD; MESH; PARALLEL; COMPUTER; ARCHITECTURE; CONNECT; HOST; COMPUTER; MASTER; PROCESSOR; ELEMENT; BROADCAST; INSTRUCTION; ARRAY; SYNCHRONOUS; EXECUTE; SLAVE; PROCESSOR; ELEMENT; CONTAIN; INPUT; OUTPUT; PROCESSOR; SECTION; ROUTE; DATA; CORE; PROCESSOR
Derwent Class: T01
International Patent Class (Main): G06F-013/00
File Segment: EPI

17/5/20 (Item 20 from file: 350)
DIALOG(R)File 350:Derwent WPIX

010044239 **Image available**
WPI Acc No: 1994-311950/199439
Related WPI Acc No: 1997-118672; 1998-446691
XRPX Acc No: N94-245577
Data processor adapted to meet requirements of fuzzy logic , neural networks **and parallel, array oriented applications - has tap and switch circuits which operate in either conducting mode or non-conducting mode in response to control values**
Patent Assignee: MOTOROLA INC (MOTI)
Inventor: GALAP M G; GORCK R L; SEYTON J R W; GALLUP M G; GOKE L R; LAWELL T G; OSBORN S G; SEATON R W; TOMAZIN T J; BELL M
Number of Countries: 008 Number of Patents: 021
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 619557	A2	19941012	EP 94104274	A	19940318	199439 B
EP 619557	A3	19960612	EP 94104274	A	19940318	199632
US 5537562	A	19960716	US 9340779	A	19930331	199634
			US 95424990	A	19950419	
US 5548768	A	19960820	US 9340779	A	19930331	199639
			US 95419861	A	19950406	
US 5559973	A	19960924	US 9340779	A	19930331	199644
			US 95425004	A	19950417	
TW 280890	A	19960711	TW 94102642	A	19940325	199647
US 5572689	A	19961105	US 9340779	A	19930331	199650
			US 95408045	A	19950321	
US 5598571	A	19970128	US 9340779	A	19930331	199710
			US 95401400	A	19950308	
US 5600846	A	19970204	US 9340779	A	19930331	199711
			US 95390831	A	19950217	
CN 1107983	A	19950906	CN 94103297	A	19940330	199732
US 5664134	A	19970902	US 9340779	A	19930331	199741
			US 95393602	A	19950223	
US 5706488	A	19980106	US 9340779	A	19930331	199808
			US 95398222	A	19950301	
US 5717947	A	19980210	US 9340779	A	19930331	199813
US 5734879	A	19980331	US 9340779	A	19930331	199820
			US 95409761	A	19950322	
US 5737586	A	19980407	US 9340779	A	19930331	199821
			US 95408098	A	19950321	
US 5742786	A	19980421	US 9340779	A	19930331	199823
			US 95389512	A	19950213	
US 5752074	A	19980512	US 9340779	A	19930331	199826
			US 95390191	A	19950210	
US 5754805	A	19980519	US 9340779	A	19930331	199827
			US 95401610	A	19950309	
US 5805874	A	19980908	US 9340779	A	19930331	199843
			US 95425961	A	19950418	
US 6085275	A	20000704	US 9340779	A	19930331	200036
			US 95389511	A	19950209	
CN 1080906	C	20020313	CN 94103297	A	19940330	200516

Priority Applications (No Type Date): US 9340779 A 19930331; US 95424990 A 19950419; US 95419861 A 19950406; US 95425004 A 19950417; US 95408045 A 19950321; US 95401400 A 19950308; US 95390831 A 19950217; US 95393602 A 19950223; US 95398222 A 19950301; US 95409761 A 19950322; US 95408098 A 19950321; US 95389512 A 19950213; US 95390191 A 19950210; US 95401610 A 19950309; US 95425961 A 19950418; US 95389511 A 19950209
Cited Patents: No-SR.Pub; 13Jnl.Ref; EP 104802; EP 112982; EP 130377; EP 130380; EP 131284; EP 150535; EP 181516; EP 211179; EP 231928; EP 240032; EP 328721; EP 395348; EP 437207; EP 495537; EP 85435; FR 1416562; GB 2113878; GB 2201015; GB 2231985; JP 4107731; JP 61221939; US 4270170; US

4514804; US 4621324; US 4890253; US 4964035; US 5029069; US 5164914; WO 8905010; WO 9008356; WO 9102311; WO 9110194; WO 9119259

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 619557	A2	E	345	G06F-015/76	
Designated States (Regional): DE FR GB IT NL					
EP 619557	A3			G06F-015/76	
US 5537562	A		265	G06F-015/16	Div ex application US 9340779
US 5548768	A		269	G06F-015/16	Div ex application US 9340779
US 5559973	A		265	G06F-009/40	Div ex application US 9340779
TW 280890	A			G06F-007/00	
US 5572689	A		264	G06F-009/315	Div ex application US 9340779
US 5598571	A		265	G06F-017/00	Div ex application US 9340779
US 5600846	A		255	G06F-015/347	Div ex application US 9340779
CN 1107983	A			G06F-015/00	
US 5664134	A		267	G06F-017/00	Div ex application US 9340779
US 5706488	A		253	G06F-009/305	Div ex application US 9340779
US 5717947	A		267	G06F-015/80	
US 5734879	A		264	G06F-009/302	Div ex application US 9340779
US 5737586	A		265	G06F-009/302	Div ex application US 9340779
US 5742786	A		265	G06F-012/00	Div ex application US 9340779
US 5752074	A			G06F-015/76	Div ex application US 9340779
US 5754805	A			G06F-009/302	Div ex application US 9340779
US 5805874	A			G06F-015/80	Div ex application US 9340779
US 6085275	A			G06F-015/40	Div ex application US 9340779
					Div ex patent US 5717947
CN 1080906	C			G06F-015/00	

Abstract (Basic): EP 619557 A

The data processor has a first port, north and west (44,50) and a second port, south and east (48,46). A storage circuit stores a number of control values (PCR) (52). A switch circuit is coupled between the two ports. The circuit is in either a conducting mode or a non-conducting mode in response to a first one of the control values.

A tap circuit is coupled between the first port and the second storage circuit. The tap circuit is in either mode in response to a second control value.

ADVANTAGE - Data processor is capable of performing both vector operations and scalar operations.

Dwg.2/7

Title Terms: DATA; PROCESSOR; ADAPT; REQUIRE; FUZZ; LOGIC; NEURAL; NETWORK; PARALLEL; ARRAY; ORIENT; APPLY; TAP; SWITCH; CIRCUIT; OPERATE; CONDUCTING; MODE; NON; CONDUCTING; MODE; RESPOND; CONTROL; VALUE

Derwent Class: T01

International Patent Class (Main): G06F-007/00; G06F-009/302; G06F-009/305; G06F-009/315; G06F-009/40; G06F-012/00; G06F-015/00; G06F-015/16; G06F-015/347; G06F-015/40; G06F-015/76; G06F-015/80; G06F-017/00

International Patent Class (Additional): G06F-013/14; G06F-017/16

File Segment: EPI

17/5/22 (Item 22 from file: 350)
DIALOG(R)File 350:Derwent WPIX

009581028 **Image available**
WPI Acc No: 1993-274574/199335
XRPX Acc No: N93-210854

Neural processor with distributed synaptic cells - uses synaptic cells communicating over chained paths that can be grouped and interrupted in part

Patent Assignee: PHILIPS ELECTRONICS NV (PHIG); LAB ELECTRONIQUE PHILIPS (PHIG); PHILIPS GLOEILAMPENFAB NV (PHIG); LAB ELECTRONIQUE PHILIPS SAS (PHIG); KONINK PHILIPS ELECTRONICS NV (PHIG); US PHILIPS CORP (PHIG)

Inventor: GOBERT J

Number of Countries: 006 Number of Patents: 008

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 558125	A1	19930901	EP 93200463	A	19930218	199335 B
FR 2687814	A1	19930827	FR 922250	A	19920226	199345
US 5608844	A	19970304	US 9323548	A	19930226	199715
			US 95405567	A	19950316	
			US 95487617	A	19950607	
US 5649069	A	19970715	US 9323548	A	19930226	199734
			US 95405567	A	19950316	
			US 95487616	A	19950607	
EP 558125	B1	19971029	EP 93200463	A	19930218	199748
DE 69314824	E	19971204	DE 614824	A	19930218	199803
			EP 93200463	A	19930218	
US 5748849	A	19980505	US 9323548	A	19930226	199825
			US 95405567	A	19950316	
			US 97779174	A	19970106	
KR 255265	B1	20000501	KR 932649	A	19930225	200128

Priority Applications (No Type Date): FR 922250 A 19920226
Cited Patents: 05Jnl.Ref
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 558125	A1	F	17	G06F-015/80	
Designated States (Regional): DE FR GB IT					
FR 2687814	A1			G06F-015/78	
US 5608844	A		14	G11C-013/00	Cont of application US 9323548 Div ex application US 95405567
US 5649069	A		14	G06F-015/18	Cont of application US 9323548 Cont of application US 95405567
EP 558125	B1	F	19	G06F-015/80	
Designated States (Regional): DE FR GB IT					
DE 69314824	E			G06F-015/80	Based on patent EP 558125
US 5748849	A		14	G06F-015/18	Cont of application US 9323548 Cont of application US 95405567
KR 255265	B1			G06F-015/18	

Abstract (Basic): EP 558125 A

The neural **processor** has **multiple** synaptic cells (SYN 1 - SYN P) that are addressed in parallel by an address bus (21) and by an operation type bus (23). The cells communicate over a data chain (22) and a chained path (24) propagating an occupation signal. Each synaptic cell determines itself its proper contribution to the overall result.

The synaptic cells can form groups of synaptic cells, having a chained data path in each group. The chained paths can be interrupted by pipeline barriers so that the cycle times can be reduced.

ADVANTAGE - Neural processor with configuration free of topological constraints and capable of dynamic modification of configuration, giving improved performance and optimum use of silicon.

Dwg.3/9

Title Terms: NEURAL; PROCESSOR; DISTRIBUTE; SYNAPTIC; CELL; SYNAPTIC; CELL; COMMUNICATE; CHAIN; PATH; CAN; GROUP; INTERRUPT; PART
Derwent Class: T01; U13
International Patent Class (Main): G06F-015/18; G06F-015/78; G06F-015/80; G11C-013/00
International Patent Class (Additional): G06F-015/18
File Segment: EPI

17/5/25 (Item 25 from file: 350)
DIALOG(R)File 350:Derwent WPIX

009081898 **Image available**
WPI Acc No: 1992-209313/199226
XRAM Acc No: C92-094981
XRPX Acc No: N92-158737
Parallel processing **network for** neural network **computers - includes stacked planes of unit cells with chalcogenide body which can be set and reset to different values of physical property**
Patent Assignee: ENERGY CONVERSION DEVICES INC (ENGD)
Inventor: OVSHINSKY S R; WICKER G
Number of Countries: 016 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 479325	A2	19920408	EP 91117039	A	19911007	199226	B
CA 2052881	A	19920406	CA 2052881	A	19911007	199226	
US 5159661	A	19921027	US 90594387	A	19901005	199246	
EP 479325	A3	19940119	EP 91117039	A	19911007	199517	
CA 2052881	C	20010717	CA 2052881	A	19911007	200144	

Priority Applications (No Type Date): US 90594387 A 19901005
Cited Patents: No-SR.Pub; 1.Jnl.Ref; EP 118158; GB 2065972
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 479325	A2	E	12	G06F-015/80	
Designated States (Regional): AT BE CH DE DK ES FR GB GR IT LI LU NL SE					
CA 2052881	A			G06F-015/76	
US 5159661	A		9	G11C-013/00	
EP 479325	A3			G06F-015/80	
CA 2052881	C	E		G06F-015/76	

Abstract (Basic): EP 479325 A
Parallel processing network comprises parallel data inputs and parallel distributed processing means including stacked planes of unit cells each formed of a chalcogenide body with a data input and output. The body may be set and reset to different values of a given physical property and the values determine the pattern and strength of the interconnections between the unit cells. The values of the chalcogenide body are pref. set and rest by applying an electric signal, pref. via the data input means.
The chalcogenide materials pref. includes **C** , Si, Ge, Sn, Pb, P, As, Sb, F, O or Bi.
USE/ADVANTAGE - In construction of **neural network** computing systems (claimed). The degree of connectivity between individual neurons may be set and reset over a large dynamic range, resulting in a computer having the ability to learn from and adapt to various data inputs.
Dwg.1/6
Title Terms: PARALLEL; PROCESS; NETWORK; NEURAL; NETWORK; COMPUTER; STACK; PLANE; UNIT; CELL; CHALCOGENIDE; BODY; CAN; SET; RESET; VALUE; PHYSICAL; PROPERTIES
Derwent Class: L03; R27; T01
International Patent Class (Main): G06F-015/76; G06F-015/80; G11C-013/00
File Segment: CPI; EPI

17/5/31 (Item 31 from file: 350)
DIALOG(R)File 350:Derwent WPIX

008293429 **Image available**
WPI Acc No: 1990-180430/199024
XRPX Acc No: N90-140237
Retro-propagation of errors in neutral network - uses multiple processors **with two processing groups to compare results of learning from examples, and back propagates errors**
Patent Assignee: PHILIPS ELECTRONICS NV (PHIG); LEP LAB ELECTRONIQUE PHILIPS (PHIG); LAB ELECTRONIQUE PHILIPS SAS (PHIG); US PHILIPS CORP (PHIG)
Inventor: SIRAT J A; SIRAT J
Number of Countries: 008 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 372613	A	19900613	EP 89202979	A	19891123	199024	B
FR 2639736	A	19900601				199029	
EP 372613	B1	19960207				199610	
DE 68925625	E	19960321	DE 625625	A	19891123	199617	
			EP 89202979	A	19891123		
US 5517598	A	19960514	US 89441141	A	19891122	199625	
			US 91767348	A	19910927		
			US 93275911	A	19930128		

Priority Applications (No Type Date): FR 8815428 A 19881125
Cited Patents: 1.Jnl.Ref; WO 8807234
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 372613	A				
Designated States (Regional): CH DE FR GB IT LI SE					
EP 372613	B1	F	16	G06F-015/80	
Designated States (Regional): CH DE FR GB IT LI SE					
DE 68925625	E			G06F-015/80	Based on patent EP 372613
US 5517598	A		9	G06F-015/18	Cont of application US 89441141
					Cont of application US 91767348

Abstract (Basic): EP 372613 A
The error retro-propagation is used in a layered **neural network**. The first step is a resolution process which determines for each layer the states of the output neurons relative to the states of the input neurons. The next step is the updating of the synaptic coefficients (Cij) during a learning process using teaching by example.
The system uses two groups of computation functions implementing a learning phase operating on two examples. The implementation of the retro-propagation algorithm is in the second processing group. The desired neuron output state is compared with the actual neuron output state, and any errors are propagated backwards through the network. The synaptic coefficient matrix and the transposed matrix of the second group are generated simultaneously.
USE/ADVANTAGE - E.g. in recognition of characters, or forms. Improved processing speed in layered **neural network** implemented on parallel computation architecture. (13pp Dwg.No.1/3)
Title Terms: RETRO; PROPAGATE; ERROR; NEUTRAL; NETWORK; MULTIPLE; PROCESSOR; TWO; PROCESS; GROUP; COMPARE; RESULT; LEARNING; EXAMPLE; BACK; PROPAGATE; ERROR
Derwent Class: T01; T04
International Patent Class (Main): G06F-015/18; G06F-015/80
International Patent Class (Additional): G06F-015/31; G06K-009/62
File Segment: EPI

17/5/32 (Item 32 from file: 350)
DIALOG(R)File 350:Derwent WPIX

007929193 **Image available**
WPI Acc No: 1989-194305/198927
XRPX Acc No: N89-148606

Neutral net structure for speech processing - uses integrated circuits for storing synaptic coefficients and states, and for multiplication, adding, and transcoding

Patent Assignee: PHILIPS GLOEILAMPENFAB NV (PHIG); LEP LAB ELECTRONIQUE PHILIPS (PHIG); LAB ELECTRONIQUE PHILIPS (PHIG)
Inventor: DURANTON M; GOBERT J; SIRAT J
Number of Countries: 006 Number of Patents: 005
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
EP 322966	A	19890705	EP 88202951	A	19881219	198927	B
FR 2625347	A	19890630				198934	
US 4994982	A	19910219	US 88289648	A	19881222	199110	
EP 322966	B1	19930811	EP 88202951	A	19881219	199332	
DE 3883192	G	19930916	DE 3883192	A	19881219	199338	
			EP 88202951	A	19881219		

Priority Applications (No Type Date): FR 8718044 A 19871223
Cited Patents: 4.Jnl.Ref
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 322966	A	F	21		
Designated States (Regional): DE FR GB IT SE					
EP 322966	B1	F	24	G06F-015/76	
Designated States (Regional): DE FR GB IT SE					
DE 3883192	G			G06F-015/76	Based on patent EP 322966

Abstract (Basic): EP 322966 A

The **neural net** processing circuit comprises a programmable digital memory (20) which holds the synaptic coefficients for the **neural net** , a digital state memory (21), multipliers (31), an adder tree (33) and a transcoder module (12). These circuits can be grouped as a set of modules to implement a larger **neural net** .

The structure can operate in parallel, **simultaneously processing** the synaptic coefficients and performing computations relative to the **neural net** . The synaptic coefficients and the states of the neurons have several possible encodings to satisfy various possible net computations.

USE/ADVANTAGE - Integrated circuit which can be used as **basic** unit for construction of complex **neural nets** which operate at high speed, for application in shape and character recognition, in image and speech processing, and combinatorial optimisation.

3/11

Title Terms: NEUTRAL; NET; STRUCTURE; SPEECH; PROCESS; INTEGRATE; CIRCUIT; STORAGE; SYNAPTIC; COEFFICIENT; STATE; MULTIPLICATION; ADD; TRANSCODER
Derwent Class: T01; T04; U13
International Patent Class (Main): G06F-015/76
International Patent Class (Additional): G06F-007/60; G06F-015/06; G06F-015/18; G06G-007/48; G06K-009/36
File Segment: EPI

17/5/36 (Item 36 from file: 347)
DIALOG(R)File 347:JAPIO

07320539 **Image available**
SYSTEM FOR AUTOMATIC ANALYSIS OF IMAGE, AND THE LIKE OF DNA MICROARRAY

PUB. NO.: 2002-189026 [JP 2002189026 A]
PUBLISHED: July 05, 2002 (20020705)
INVENTOR(s): ARENA PAOLO
FORTUNA LUIGI
LAVORGNA MARIO
OCCHIPINTI LUIGI
APPLICANT(s): STMICROELECTRONICS SRL
APPL. NO.: 2001-252501 [JP 2001252501]
FILED: August 23, 2001 (20010823)
PRIORITY: 00 00830588 [EP 2000830588], EP (European Patent Office), August 25, 2000 (20000825)
INTL CLASS: G01N-033/53; C12M-001/00; C12N-015/09; G01N-033/566; G01N-037/00; G06T-001/00; G06T-007/00; G06T-011/60

ABSTRACT

PROBLEM TO BE SOLVED: To solve the problem of even though images can be **processed** **simultaneously** with a microarray in parallel in a microarray technique, the processing speed of an analytical technique using a digital microprocessor is limited and the efficiency of the technique is disturbed.

SOLUTION: The system, by which an image containing the matrix of spots, such as the images or the like of a hybridized DNA microarrays after hybridization has been conducted, is provided. The system is provided with a circuit 20 which processes an image signal corresponding to the images. The circuit is constituted on the basis of the architecture of a cellular **neural** **network** (CNN) for the parallel analog processing of the image signal. The circuit can be related to a sensor 10 acquiring the images, and it can be integrated with a single monolithic component, on which a VLSI CMOS technique is mounted.

17/5/38 (Item 38 from file: 347)
DIALOG(R)File 347:JAPIO

06736553 **Image available**
INFORMATION PROCESSOR

PUB. NO.: 2000-322400 [JP 2000322400 A]
PUBLISHED: November 24, 2000 (20001124)
INVENTOR(s): KATO SUKEJI
KASHIMURA HIROTSUGU
APPLICANT(s): FUJI XEROX CO LTD
APPL. NO.: 11-128538 [JP 99128538]
FILED: May 10, 1999 (19990510)
INTL CLASS: G06F-015/18

ABSTRACT

PROBLEM TO BE SOLVED: To provide an information processor for which experiment on a large- scale **neural network** allowing **plural processor** units to independently and quickly operate, and transmitting neuron outputs in a simple control system is carried out.

SOLUTION: This information processor is provided with a neuron output preservation memory 16 constituted of plural memory blocks 141-14n+1 having the same physical address, **plural processor** units 101-10n connected with each memory block 141-14n one to one for independently performing a neuron arithmetic operation, and for writing the obtained neuron output values in preliminarily designated addresses, plural synapse coefficient memories 121-12n for storing synapse coefficients necessary for the neuron arithmetic operation assigned to the connected processors units 101-10n, a convergence judging circuit 18 connected with one memory block 14n+1 for judging the convergence of the fluctuation of values to be written in the memories of the preliminarily designated addresses, and a control part 20 for controlling the whole device.

17/5/41 (Item 41 from file: 347)
DIALOG(R)File 347:JAPIO

03682383 **Image available**
NEURAL NETWORK TYPE CALCULATING DEVICE

PUB. NO.: 04-047483 [JP 4047483 A]
PUBLISHED: February 17, 1992 (19920217)
INVENTOR(s): HIROSE YOSHIO
APPLICANT(s): FUJITSU LTD [000522] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 02-152772 [JP 90152772]
FILED: June 13, 1990 (19900613)
INTL CLASS: [5] G06G-007/60; G06F-015/18
JAPIO CLASS: 45.4 (INFORMATION PROCESSING -- Computer Applications)
JOURNAL: Section: P, Section No. 1360, Vol. 16, No. 225, Pg. 82, May 26, 1992 (19920526)

ABSTRACT

PURPOSE: To increase the calculation speed by providing plural ring networks having the functions of an input layer, an intermediate layer, and an output layer and executing the learning function of the back propagation method for given patterns in parallel by respective ring networks.

CONSTITUTION: This device has the multilayered structure consisting of an input layer, at least one intermediate layer, and an output layer, and plural ring networks A, B, **C** , and D having respective functions of the input layer, intermediate layers, and the output layer execute the learning function of the back propagation method for patterns given to these ring networks in parallel. Thus, the calculation speed is increased by parallel calculation of **plural** elemental **processors** , and **plural** patterns are simultaneously learnt in the simulation of a **neural network** to considerably increase the calculation speed.

17/5/42 (Item 42 from file: 347)
DIALOG(R)File 347:JAPIO

03437855 **Image available**
METHOD AND DEVICE FOR FULLY-CONNECTED NETWORK **PARALLEL PROCESSING**

PUB. NO.: 03-100755 [JP 3100755 A]
PUBLISHED: April 25, 1991 (19910425)
INVENTOR(s): IWASHITA MASAO
APPLICANT(s): NEC CORP [000423] (A Japanese Company or Corporation), JP (Japan)
APPL. NO.: 01-238616 [JP 89238616]
FILED: September 13, 1989 (19890913)
INTL CLASS: [5] G06F-015/18
JAPIO CLASS: 45.4 (INFORMATION PROCESSING -- Computer Applications)
JOURNAL: Section: P, Section No. 1230, Vol. 15, No. 292, Pg. 74, July 24, 1991 (19910724)

ABSTRACT

PURPOSE: To perform the processing at a high speed by obtaining center processing results preliminarily transposed in respective processor modules to reduce the processing for special transposition and the number of times of data transfer at the time of divisional processing of **plural processor** modules.

CONSTITUTION: Processings whose number is obtained by dividing b-number of intermadiate layers by (n) are assigned to processor modules 1 and 2, and partial charge of processings of networks of a-number of input layers and **c** - number of output layers coupled to them are taken by processor modules, and a partial sum of output layers is obtained by each of processor modules 1 and 2, and thereafter, data is collectively transferred to one shared memory 13 to obtain the total sum. The total sum and the error obtained from a teacher signal are collectively transferred as data to processor modules 1 and 2, and values of weights of networks coupled to n-number of intermediate layers are obtained by processor modules 1 and 2. **Neural network** recognition and learning processing are performed without transposition for weight it values of networks on the shared memory 13. Thus, the processing is performed at a high speed.

23/5/6 (Item 6 from file: 350)
DIALOG(R)File 350:Derwent WPIX

016739916 **Image available**
WPI Acc No: 2005-064213/200507
XRPX Acc No: N05-055652

Employee e.g. insurance agent, hiring system, has keyboard to input data that is reviewed by decision nodes in model identification step, and fuzzy interference system is used to review data

Patent Assignee: VON KLLEECK D L (VKLL-I)
Inventor: VON KLLEECK D L
Number of Countries: 001 Number of Patents: 001
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20040254902	A1	20041216	US 2003320261	P	20030611	200507 B
			US 2004710008	A	20040611	

Priority Applications (No Type Date): US 2003320261 P 20030611; US 2004710008 A 20040611
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
US 20040254902	A1		9	G06F-017/60	Provisional application US 2003320261

Abstract (Basic): US 20040254902 A1

NOVELTY - The system has a keyboard for inputting data that is reviewed by decision nodes in a model identification step. Artificial **neural network** and fuzzy interference system is used to review the data. The fuzzy interference uses self organization map, native **bayesian** classifier, learning vector quantization, probabilistic **neural network** and neural genetic optimizer to review the data.

USE - Used for hiring an employee e.g. insurance agent.

ADVANTAGE - The system eliminates the need of a new data or a new instrument, yields a better retention rate and uses leading edge technologies e.g. **fuzzy logic** , to score a same selection instrument, thus producing clearly superior results.

DESCRIPTION OF DRAWING(S) - The drawing shows a flow chart of a system for hiring an employee.

pp; 9 DwgNo 3/3

Title Terms: EMPLOY; INSURANCE; AGENT; HIRE; SYSTEM; KEYBOARD; INPUT; DATA; DECIDE; NODE; MODEL; IDENTIFY; STEP; FUZZ; INTERFERENCE; SYSTEM; REVIEW; DATA

Derwent Class: T01; T02; U21

International Patent Class (Main): G06F-017/60

International Patent Class (Additional): G06E-001/00; G06E-003/00; G06F-015/18; G06G-007/00; G06N-003/00; G06N-003/12

File Segment: EPI

23/5/17 (Item 17 from file: 350)
DIALOG(R)File 350:Derwent WPIX

013662504 **Image available**
WPI Acc No: 2001-146716/200115
XRPX Acc No: N01-107417

Intelligent computer system for e-commerce, has artificial intelligence **module to selectively update** Bayesian **models stored in application domain of function of dynamically changing related information**

Patent Assignee: MANNA INC (MANN-N)
Inventor: BARNEA G; RATSABY J
Number of Countries: 088 Number of Patents: 003
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 200070481	A1	20001123	WO 2000US13360	A	20000515	200115 B
AU 200048520	A	20001205	AU 200048520	A	20000515	200115
EP 1194862	A1	20020410	EP 2000930757	A	20000515	200232
			WO 2000US13360	A	20000515	

Priority Applications (No Type Date): US 99134105 P 19990514
Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
WO 200070481	A1	E	158	G06F-015/18	

Designated States (National): AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG UZ VN YU ZA ZW
Designated States (Regional): AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW NL OA PT SD SE SL SZ TZ UG ZW

AU 200048520	A		G06F-015/18	Based on patent WO 200070481
EP 1194862	A1	E	G06F-015/18	Based on patent WO 200070481

Designated States (Regional): AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI

Abstract (Basic): WO 200070481 A1
NOVELTY - Application system having application domain stored with **Bayesian** models each relates to entity within domain, and set of attributes, is coupled to intelligence system. Intelligence system

updates **Bayesian** models as a function of dynamically changing domain related information, based on which, real-time prediction and recommendations related to application domain is provided.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(a) interference system;

(b) method for providing prediction and recommendations;

(**c**) **machine learning** system;

(d) method of representing and maintaining entities in application domain

USE - For intelligence e-commerce computer system for enterprise.

ADVANTAGE - Due to the intelligent system, the enterprise system has no down-time, operates in real-time, and is structured to have unencumbered scalability.

DESCRIPTION OF DRAWING(S) - The figure shows the program architecture for the intelligence system.

pp; 158 DwgNo 2/26

Title Terms: INTELLIGENCE; COMPUTER; SYSTEM; ARTIFICIAL; INTELLIGENCE; MODULE; SELECT; UPDATE; **BAYESIAN** ; MODEL; STORAGE; APPLY; DOMAIN; FUNCTION; DYNAMIC; CHANGE; RELATED; INFORMATION

Derwent Class: T01

International Patent Class (Main): G06F-015/18

International Patent Class (Additional): G05B-013/02; G06F-017/30; G06F-017/60; G06N-005/02

File Segment: EPI

```
Set     Items   Description
S1      37582   PARALLEL()PROCESS? OR PROCESS?(3N)(SAME()TIME OR SIMULTANE-
             OUS? OR SYNCHRONOUS OR SYNCHRONI?E? ? OR SYNCHRONI?ING  OR SY-
             MMETRIC? OR SYMMETRY)
S2      51119   (PLURAL? OR MORE()THAN()ONE OR MANY OR SEVERAL OR MULTIPLE?
              ? OR MULTIPLICITY OR VARIOUS OR NUMEROUS OR MYRIAD OR SECOND?
             OR 2ND OR PRIMARY OR THOUSAND? ? OR MILLION? ? OR HUNDRED? ?-
             )(3N)(CPU? ? OR PROCESSOR? ? OR PROCESSING()UNIT? ? OR MICROP-
             ROCESSOR? ?)
S3      70408   (NEURAL()(NET? ? OR NETWORK? OR SYSTEM? ?)) OR ((MACHINE? ?
              OR AUTOMATIC? OR AUTOMATE? ? OR AUTOMATING OR AUTOMATION OR -
             COMPUTER? ?)()(LEARN? OR TRAIN? OR DECISION()MAKING OR INTELL-
             IGENCE)) OR NEUROCOMPUT? OR EXPERT()SYSTEM? ? OR ARTIFICIAL()-
             INTELLIGENCE
S4       1422   BROWNIAN
S5       2374   BAYES OR BAYESIAN
S6      14474   (CONVERT?R? ? OR CONVERT? ? OR CONVERTED OR CONVERTING OR -
             CHANGE? ? OR CHANGING OR TRANSLATE? ? OR TRANSLATOR OR TRANSL-
             ATING OR TRANSLATION? ? OR TRANSFER? ? OR TRANFERED OR TRANFE-
             RING OR TRANSFORM?? OR TRANFORMING OR TRANFORMATION)(3N) (LAN-
             GUAGE? ? OR CO
S7       2987   FUZZY()LOGIC
S8          1   S4 (S) S5
S9         12   S4 AND S5
S10        12   IDPAT (sorted in duplicate/non-duplicate order)
S11        12   IDPAT (primary/non-duplicate records only)
S12        21   (S1 OR S2) (S) (S4 OR S5)
S13        20   S12 NOT S11
S14        20   IDPAT (sorted in duplicate/non-duplicate order)
S15        20   IDPAT (primary/non-duplicate records only)
S16       620   S3 (S) (S4 OR S5)
S17        68   S16 (S) (S6 OR S7)
S18        67   S17 NOT (S11 OR S15)
S19        44   S18 AND IC=(G05B OR G06E OR G06N OR G06G OR G06F)
S20        44   IDPAT (sorted in duplicate/non-duplicate order)
S21        44   IDPAT (primary/non-duplicate records only)
File 348:EUROPEAN PATENTS 1978-2005/Jul W02
         (c) 2005 European Patent Office
File 349:PCT FULLTEXT 1979-2005/UB=20050714,UT=20050707
         (c) 2005 WIPO/Univentio
```

11/3,K/1 (Item 1 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

01455766
IDENTIFICATION OF INDIVIDUAL CELLS DURING KINETIC ASSAYS
IDENTIFIZIERUNG VON ZELLEN WAHREND KINETISCHER VERSUCHSREIHEN
ESSAI AUTOMATISE SERVANT A IDENTIFIER DES CELLULES INDIVIDUELLES PENDANT DES ESSAIS CINETIQUES

PATENT ASSIGNEE:
Cellomics, Inc., (4219050), 100 Technology Drive, Pittsburgh, PA 15219, (US), (Proprietor designated states: all)
INVENTOR:
SAMMAK, Paul, 551 Olive Street, Pittsburgh, PA 15237, (US)
ROSANIA, Gustavo, 1805 Vinan Kay Circle, Ann Arbor, MI 48103, (US)
RUBIN, Richard, 216 Gladstone Road, Pittsburgh, PA 15238, (US)
NEDERLOF, Michel, 1502 Fox Chapel Road, Pittsburg, PA 15238, (US)
LAPETS, Oleg, P., Shady Oak Circle, Allison Park, PA 15101, (US)
SHOPOFF, Randall, O., 113 Country Club Drive, Pittsburg, PA 15235, (US)
KANNAN, Murugan, 8988 Meadow Oaks Drive, Allison Park, PA 15101, (US)
LEGAL REPRESENTATIVE:
Grund, Martin, Dr. et al (90761), Dr. Volker Vossius, Patentanwaltskanzlei, Geibelstrasse 6, 81679 Munchen, (DE)
PATENT (CC, No, Kind, Date): EP 1348124 A2 031001 (Basic)
EP 1348124 B1 040519
WO 2002061423 020808
APPLICATION (CC, No, Date): EP 2001994392 011221; WO 2001US49928 011221
PRIORITY (CC, No, Date): US 258147 P 001222
DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE; TR
EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI
INTERNATIONAL PATENT CLASS: G01N-033/50; G06F-019/00
NOTE:
No A-document published by EPO
LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200421	1120
CLAIMS B	(German)	200421	1101
CLAIMS B	(French)	200421	1455
SPEC B	(English)	200421	7890
Total word count - document A			0
Total word count - document B			11566
Total word count - documents A + B			11566

...SPECIFICATION factors. In another embodiment, the weight factor is computed from leaming sets and applying a **Bayes** classifier or other technique.

In a preferred embodiment, the quality score is determined by first... by defining its speed and persistence in a direction (Directed motion), by a diffusion coefficient (**Brownian** motion), and/or by defining an affinity factor, which reflects the effect of nearby cells...

11/3,K/4 (Item 4 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

01203492 **Image available**
SYSTEM AND METHOD FOR REPRESENTING AND INCORPORATING AVAILABLE INFORMATION INTO UNCERTAINTY-BASED FORECASTS
SYSTEME ET PROCEDE POUR REPRESENTER ET INCORPORER DES INFORMATIONS DISPONIBLES DANS DES PREVISIONS FONDEES SUR L'INCERTITUDE

Patent Applicant/Assignee:
VIVECON CORPORATION, 707 California Street, Mountain View, CA 94041, US, US (Residence), US (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
JOHNSON Blake, c/o Vivecon Corporation, 707 California Street, Mountain View, California 94041, US, US (Residence), US (Nationality), (Designated only for: US)
BENAVIDES Dario, c/o Vivecon Corporation, 707 California Street, Mountain View, California 94041, US, US (Residence), CL (Nationality), (Designated only for: US)
KANN Antje, c/o Vivecon Corporation, 707 California Street, Mountain View, California 94041, US, US (Residence), DE (Nationality), (Designated only for: US)
Legal Representative:
YEE Susan (et al) (agent), Carr & Ferrell LLP, 2200 Geng Road, Palo Alto, California 94303, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200510700 A2 20050203 (WO 0510700)
Application: WO 2004US23144 20040719 (PCT/WO US04023144)
Priority Application: US 2003621645 20030717
Designated States:
(All protection types applied unless otherwise stated - for applications 2004+)
AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PL PT RO SE SI SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) BW GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 10401

Fulltext Availability:
Detailed Description

Detailed Description
... reverts and the (instantaneous) standard deviation of the process, and clZ is the standard normal **Brownian** motion process.

I 0 [00351 Extensionsandmodificationsofthesesimpleformsofmean-reverting models have been developed which enable information about...the relative performance of each set of parameter values over time, for example by using **Bayesian** methods, or through another method, for example based on a user's changing level of...

11/3,K/6 (Item 6 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

01032880 **Image available**
MAGNETIC RESONANCE METHOD AND SYSTEM FOR QUANTIFICATION OF ANISOTROPIC DIFFUSION
PROCEDE ET SYSTEME A RESONANCE MAGNETIQUE POUR LA QUANTIFICATION DE LA DIFFUSION ANISOTROPE

Patent Applicant/Assignee:
WASHINGTON UNIVERSITY, One Brookings Drive, St. Louis, MO 63130, US, US (Residence), US (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
YABLONSKIY Dmitriy A, c/o Washington University, One Brookings Drive, St. Louis, MO 63130, US, US (Residence), US (Nationality)
SUKSTANSKII Alexander L, c/o Washington University, One Brookings Drive, St. Louis, MO 63130, US, US (Residence), UA (Nationality)
CONRADI Mark S, c/o Washington University, One Brookings Drive, St. Louis, MO 63130, US, US (Residence), US (Nationality)
Legal Representative:
AGOVINO Frank R (et al) (agent), Senniger, Powers, Leavitt & Roedel, One Metropolitan Square, 16th Floor, St. Louis, MO 63102, US,

Patent and Priority Information (Country, Number, Date):
Patent: WO 200362859 A1 20030731 (WO 0362859)
Application: WO 2003US1422 20030116 (PCT/WO US0301422)
Priority Application: US 2002349170 20020116
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SC SD SE SG SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT SE SI SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 10777

Fulltext Availability:
Detailed Description

Detailed Description
... known that atoms or molecules of a gas diffuse; that is, the atoms perform a **Brownian** -motion ...Eq. [6] with F-function from Eq. [12] on a pixel-by-pixel basis using **Bayesian** probability theory with uninformative prior probabilities. the transverse and longitudinal diffusivities were then obtained from...

11/3,K/8 (Item 8 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00810341 **Image available**
IMPROVEMENTS IN OR RELATING TO APPLICATIONS OF FRACTAL AND/OR CHAOTIC TECHNIQUES
AMELIORATIONS RELATIVES A DES APPLICATIONS DES TECHNIQUES FRACTALES ET/OU CHAOTIQUES
Patent Applicant/Assignee:
DURAND TECHNOLOGY LIMITED, River House, 6 Walnut Tree Park, Walnut Tree Close, Guildford, Surrey GU1 4TR, GB, GB (Residence), GB (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
JOHNSON William Nevil Heaton, 1 Brock Terrace, The Grange, St. Peter Port, Guernsey GY1 1RT, GB, -- (Residence), GB (Nationality), (Designated only for: US)
BLACKLEDGE Jonathan Michael, Faculty of Computing Sciences and Engineering, Dept. of Mathematical Sciences, De Montfort University, Leicester LE1 9BH, GB, GB (Residence), GB (Nationality), (Designated only for: US)
MURRAY Bruce Lawrence John, Merryfields, Ridgelands, Barcombe, E. Sussex BN8 5BW, GB, GB (Residence), GB (Nationality), (Designated only for: US)
Legal Representative:
HOWDEN Christopher A (agent), Forrester Ketley & Co., Forrester House, 52 Bounds Green Road, London N11 2EY, GB,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200143067 A2-A3 20010614 (WO 0143067)
Application: WO 2000GB4736 20001211 (PCT/WO GB0004736)
Priority Application: GB 9929364 19991210; GB 9929940 19991217; GB 2000952 20000117; GB 20006239 20000315; GB 20006964 20000322
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 50073
Fulltext Availability:
Detailed Description

Detailed Description
... limited range of scales.

SUBSTITUTE SHEET (RULE 26)
6.3 Random Practals
6 1 Classical **Brownian** Motion
There are many examples in the field of physics, chemistry and,biology of random processes. **Brownian** motion is a relevant mathematical model for many such physical processes. These processes display properties which have now been shown to be best described as fractal processes.

In **Brownian** motion, the position of a particle at one time is not independent of the particles motion at a previous time. It is the increments of the position that are independent. **Brownian** motion in ID is seen as a particle moving backwards and forwards on the x...

...6 2, we give an example of a physical process that has been modelled by **Brownian** motion.
6 2 Diffusion as an Example of **Brownian** Motion
For a particle moving in ID (along the x-axis), consider the following model...which is the scaling relation for the probability density. The above equation shows that the **Brownian** process is invariant in its statistical distribution under a transformation that changes the time scaled...X(t)
X(to)OCCJt
tO1H) O<H<1
which provides the basis for Fractional **Brownian** Motion.

Fractional **Brownian** Motion is an example of statistical fractal geometry and is the basis for the coding...This model is a generalisation of three distinct PSDFs used for stochastic modelling.

(i) Fractional **Brownian** Motion (g = O,wo = 0)
(H) Ornstein-Uhlenbeck model (g q 1)
2
(iii) Bermarm...data whereas this filter is regularized by a constant determined by the Lagrange multiplier.

3. **Bayesian** Estimation
The processes discussed so far do not take into account the statistical nature of...

...of approach must be taken which is based on a result in probability theory called **Bayes** : rule named after the English mathematician Thomas **Bayes** .

The probability of an event
Suppose we toss a coin, observe whether we get heads...q
P
Hence, we have
P(B and A) = P(B)P(A I B)
Bayes Rule
The probability of getting A and B occurring simultaneously is exactly the same as...

...I A) - P(B)P(A I B)
P(A)
This result is known as **Bayes** rule. It relates the conditional probability of 'B given A' to that of 'A given B'.

SUBSTITUTE SHEET (RULE 26)
Bayesian Estimation in Signal and Image Processing
In signal and image analysis **Bayes** rule is written in the form
Pfflp(s I P
PU I s) P(s...

...result is the basis for a class of restoration methods which axe known collectively as **Bayesian** estimators.

Bayesian estimation attempts to recover f in such a way that the probability of getting f...PDF is also a maximum when
a In P(f Is)= 0
af
Now, using **Bayes** rule, we can write this equation as
a In P(s I f) + a In...

...is known as the Maximum a Posteriori or MAP method. To illustrate the principles of **Bayesian** estimation, we shall now present some simple examples of how this technique can be applied to data analysis.

SUBSTITUTE SHEET (RULE 26)
3 9

Bayesian Estimation - Example 1

Suppose that we measure a single sample s (one real number) in...had a Gaussian distribution.

From the example given above, it should now be clear that **Bayesian** estimation (i.e. the MAP method) is only as good as the a priori information...

...where there is a complete lack of knowledge about the statistical behaviour of the object.

Bayesian Estimation - Example 2

To further illustrate the difference between the MAP and ML estimate and ...

...problem is to find an estimate for a. To solve problems of this type using **Bayesian** estimation, we must introduce multidimensional probability theory. In this case, the PDF is a function...ML estimate.

3.1 The Maximum Likelihood Filter

In the last section, the principles of **Bayesian** estimation were presented. We shall now use these principles to design deconvolution algorithms for digital...filter, Power Spectrum Equalization filter, the Matched filter and the Maximum Entropy Method. In addition, **Bayesian** estimation methods have been considered which rely on a priort' information on the statistics (compounded...

...function fij.

The Maximum Likelihood and Maximum a Po-steriort methods are both forms of **Bayesian** estimation. In this report, only Gaussian statistics have been considered to illustrate the principles involved...

11/3,K/10 (Item 10 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00478148
METHOD AND DATA SYSTEM FOR DETERMINING FINANCIAL INSTRUMENTS FOR USE IN THE FUNDING OF A LOAN
PROCEDE ET SYSTEME DE DONNEES DESTINES A DETERMINER LES INSTRUMENTS FINANCIERS UTILISES DANS LE FINANCEMENT D'UN PRET
Patent Applicant/Assignee:
REALKREDIT DANMARK A S,
KRISTIANSEN Klaus,
BORGERSEN Borger,
LARSEN Bjarne Graven,
ROSENKRANS Mads,
LINDAHL Thomas,
TORNES-HANSEN Stig,
PETERSEN Bo Godthjaelp,
Inventor(s):
KRISTIANSEN Klaus,
BORGERSEN Borger,
LARSEN Bjarne Graven,
ROSENKRANS Mads,
LINDAHL Thomas,
TORNES-HANSEN Stig,
PETERSEN Bo Godthjaelp,
Patent and Priority Information (Country, Number, Date):
Patent: WO 9909500 A2 19990225
Application: WO 98DK339 19980731 (PCT/WO DK9800339)
Priority Application: DK 090397 19970801
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AL AM AT AT AU AZ BA BB BG BR BY CA CH CN CU CZ CZ DE DE DK DK EE EE ES
FI FI GB GE GH GM HR HU ID IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV
MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SK SL TJ TM TR TT UA
UG US UZ VN YU ZW GH GM KE LS MW SD SZ UG ZW AM AZ BY KG KZ MD RU TJ TM
AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM
GA GN GW ML MR NE SN TD TG
Publication Language: English
Fulltext Word Count: 64236

Fulltext Availability:
Detailed Description

Detailed Description
... loan.
Figure 6 shows the calculation of probabilities in the lattice 20 by means of **Bayes** ' rule. In the figure the shown lattice is calibrated to a flat yield curve.

Figure...dZ-(t) is a so-called Wiener process. (The process is also termed a generalized **Brownian** motion). The Wiener process is to be seen as the counterpart to a random walk...match between the remaining debt and the interest rate adjustment amounts.

25 In the projection, **Bayes** ' rule is applied for the determination of the probabilities. **Bayes** ' rule expresses the probability of an event having occurred by a specific path as probabilities...1,2 ... corresponding to the forward induction method. With the definition of the cumulative probabilities, **Bayes** , rule may be formulated. Let (2.5) P"((g- 1 t k)1(g, h...

11/3,K/11 (Item 11 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00417706 **Image available**
SIGNAL PROCESSING METHOD USING A FINITE-DIMENSIONAL FILTER
PROCEDE DE TRAITEMENT DE SIGNAUX AU MOYEN D'UN FILTRE DIMENSIONNEL FINI
Patent Applicant/Assignee:
UNIVERSITY OF ALBERTA,
THE UNIVERSITY OF MELBOURNE,
ELLIOTT Robert James,
KRISHNAMURTHY Vikram,
Inventor(s):
ELLIOTT Robert James,
KRISHNAMURTHY Vikram,
Patent and Priority Information (Country, Number, Date):
Patent: WO 9808167 A1 19980226
Application: WO 97AU519 19970815 (PCT/WO AU9700519)
Priority Application: AU 961701 19960816
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AL AM AT AU AZ BA BB BG BR BY CA CH CN CU CZ DE DK EE ES FI GB GE GH HU IL IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT UA UG US UZ VN YU ZW GH KE LS MW SD SZ UG ZW AM AZ BY KG KZ MD RU TJ TM AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG
Publication Language: English
Fulltext Word Count: 16408

Fulltext Availability:
Detailed Description

Detailed Description
... 19k-1 - EjAkg(Wk)f(Vk)lgk-1) (7)
tjAkj9k-11
using a version of **Bayes** ' theorem (10].

Now Ak-1 is 9k- I measurable, therefore
Efg(wk)f(Vk)j9k...ij (M)+ bin/
E f Jk" 13/ k k Pk (48)
PROOF. Using the abstract **Bayes** rule (7) we have
(M) EjAk H'j(m'lYk) Oij (M) (X) dx
k...in
January 1997
dS, 5t)Sldt + a, Stdz, Q) (1)
Here, z, is a standard **Brownian** motion, and 6t represents the "convenience yield" (which models the value of holdings amounts of...

...51 = 1c(a - i5r)dt + cy,dz, Q) (2)
Here, Z2 is a second standard **Brownian** motion with <Z1(t), Z2(t)> = Pt.

It is convenient to consider the logarithm of...

11/3,K/12 (Item 12 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00182558 **Image available**
CONTINUOUS BAYESIAN **ESTIMATION WITH A NEURAL NETWORK ARCHITECTURE**
PROCEDE POUR EFFECTUER UNE ESTIMATION BAYESIENNE UTILISANT UNE ARCHITECTURE DE RESEAU NEURONAL
Patent Applicant/Assignee:
LAWRENCE Malcolm Graham,
Inventor(s):
DAWES Robert Leo,
Patent and Priority Information (Country, Number, Date):
Patent: WO 9016038 A1 19901227
Application: WO 90GB932 19900615 (PCT/WO GB9000932)
Priority Application: US 89468 19890616
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AT AU BE CH DE DK ES FR GB IT JP LU NL SE SU
Publication Language: English
Fulltext Word Count: 22397

CONTINUOUS BAYESIAN **ESTIMATION WITH A NEURAL NETWORK ARCHITECTURE**
Fulltext Availability:
Detailed Description

Detailed Description
CONTINUOUS **BAYESIAN** ESTIMATION
WITH A NEURAL NETWORK ARCHITECTURE
TECHNICAL FIELD OF THE INVENTION
The present invention pertains...

...network architecture, and more particularly, to an architecture which is designed to perform adaptive, continuous **Bayesian** estimation on unpreprocessed large dimensional data,
BACKGROUND OF TEOE: INVENTION
Artificial neural systems is the...

...whereas another filtering approach, the Kalman-Bucy filter, provides continuously evolving estimates, The multi stage **Bayesian** or Continuous **Bayesian** estimator ...from that shown in Figure 6, It is based on the more general multi-stage **Bayesian** estimator as described in Ho, Y.C. and Lee, R.C.K., "A **Bayesian** Approach to Problems in Stochastic Estimation and Control". I.E.E.E, Transactions of Automation...history of its input. This is an important technicality: A true innovations process is a **Brownian** motion, useless for control or error correction.

But a suboptimal innovations process can be so...

15/3,K/1 (Item 1 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

01383371
Stereoscopic image disparity measuring system
System zur Ungleichheitsmessung von stereoskopischen Bildern
Systeme de mesure de disparite stereo
PATENT ASSIGNEE:
Pohang University of Science and Technology Foundation, (2460211), San 31, Hyoja-dong, Nam-gu, Pohang 790-784, (KR), (Proprietor designated states: all)
INVENTOR:
Jeong, Hong, 8-1501 Kyosu Apt., Jigok-dong, Nam-gu, Pohang-city, Kyungsangbuk-do, (KR)
Oh, Yun-Soo, 9-1801 Kyosu Apt., Jigok-dong, Nam-gu, Pohang-city, Kyungsangbuk-do, (KR)
LEGAL REPRESENTATIVE:
Stanley, David William (36326), Stanleys Intellectual Property Kings Court 12 King Street, Leeds LS1 2HL, (GB)
PATENT (CC, No, Kind, Date): EP 1175104 A2 020123 (Basic)
EP 1175104 A3 020417
EP 1175104 B1 050406
APPLICATION (CC, No, Date): EP 2001305234 010615;
PRIORITY (CC, No, Date): KR 2041424 000719
DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI; LU; MC; NL; PT; SE; TR
EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI
INTERNATIONAL PATENT CLASS: H04N-013/00; G06T-007/00
ABSTRACT WORD COUNT: 142
NOTE:
Figure number on first page: 1

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200204	928
CLAIMS B	(English)	200514	889
CLAIMS B	(German)	200514	847
CLAIMS B	(French)	200514	1037
SPEC A	(English)	200204	4717
SPEC B	(English)	200514	4621
Total word count - document A			5646
Total word count - document B			7394
Total word count - documents A + B			13040

...ABSTRACT the image matching means. According to the system, real-time stereo matching is enabled by **parallel processing** of video image sequences using an algorithm that is based on a new dynamic trellis based method and is optimal in the **Bayesian** sense.

...SPECIFICATION much faster than the Markov random field based ones, they do not scale well for **parallel processing** and are thus still unsuitable for real-time stereo matching.
Preferred embodiments of the present...

...time stereo image matching system which enables real-time stereo matching, this being achieved by **parallel processing** video image sequences using an algorithm which is based on a new trellis based method and is optimal in the **Bayesian** sense.
More generally, according to one aspect of the present invention, there is provided a...

...present invention.

15/3,K/2 (Item 2 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

01083595
MEASUREMENT SYSTEM
MESSSYSTEM
SYSTEME DE MESURE
PATENT ASSIGNEE:
CAMBRIDGE CONSULTANTS LIMITED, (211520), Science Park Milton Road, Cambridge CB4 4DW, (GB), (Proprietor designated states: all)
INVENTOR:
SEWELL, Roger Fane, 19 Champneys Walk, Newnham, Cambridge CB3 9AW, (GB)
LEGAL REPRESENTATIVE:
Beresford, Keith Denis Lewis et al (28273), BERESFORD & Co. 16 High Holborn, London WC1V 6BX, (GB)
PATENT (CC, No, Kind, Date): EP 1058879 A1 001213 (Basic)
EP 1058879 B1 040414
WO 1999041662 990819
APPLICATION (CC, No, Date): EP 99905070 990217; WO 99GB488 990217
PRIORITY (CC, No, Date): GB 9803368 980217
DESIGNATED STATES: AT; CH; DE; DK; FR; GB; IT; LI; NL; SE
INTERNATIONAL PATENT CLASS: G06F-009/44; G01N-015/14
NOTE:
No A-document published by EPO
LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200416	833
CLAIMS B	(German)	200416	766
CLAIMS B	(French)	200416	882
SPEC B	(English)	200416	6748
Total word count - document A			0
Total word count - document B			9229
Total word count - documents A + B			9229

...SPECIFICATION events which are not directly observable.
United States Patent Specification No US-A-5347541 discloses **Bayesian** blind equalizer for use in digital communication comprising a **plurality** of **parallel processors** . Each processor in turn generates an estimated signal and an updated metric in order to...

15/3,K/5 (Item 5 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

00483636
Information recognition apparatus and method
Gerat und Verfahren zur Informationserkennung
Dispositif et procede de reconnaissance d'information
PATENT ASSIGNEE:
CANON KABUSHIKI KAISHA, (542361), 30-2, 3-chome, Shimomaruko, Ohta-ku, Tokyo, (JP), (Proprietor designated states: all)
INVENTOR:
Ueno, Shugoro, Canon Kabushiki Kaisha, 30-2, 3-chome, Shimomaruko, Ohta-ku, Tokyo, (JP)
Kugai, Masami, Canon Kabushiki Kaisha, 30-2, 3-chome, Shimomaruko, Ohta-ku, Tokyo, (JP)
Tanaka, Tetsuomi, Canon Kabushiki Kaisha, 30-2, 3-chome, Shimomaruko, Ohta-ku, Tokyo, (JP)
LEGAL REPRESENTATIVE:
Beresford, Keith Denis Lewis et al (28273), BERESFORD & Co. High Holborn 2-5 Warwick Court, London WC1R 5DJ, (GB)
PATENT (CC, No, Kind, Date): EP 457547 A2 911121 (Basic)
EP 457547 A3 931020
EP 457547 B1 000426
APPLICATION (CC, No, Date): EP 91304313 910514;
PRIORITY (CC, No, Date): JP 90125936 900515; JP 90191021 900718
DESIGNATED STATES: DE; FR; GB
INTERNATIONAL PATENT CLASS: G06K-009/00
ABSTRACT WORD COUNT: 54
NOTE:
Figure number on first page: 1

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200017	719
CLAIMS B	(German)	200017	616
CLAIMS B	(French)	200017	836
SPEC B	(English)	200017	4928
Total word count - document A			0
Total word count - document B			7099
Total word count - documents A + B			7099

...SPECIFICATION if the loop has not been repeated M times at step S32). Timings for such **parallel processing** are shown in FIG. 11. In the identification processing at step S35, the distance between a standard pattern and the above-described characteristic vector is calculated using a pseudo- **Bayes** identification expression, as shown in the above-cited Japanese Patent Application Public Disclosure (Kokai) No...

15/3,K/6 (Item 6 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

01247962 **Image available**
COMPUTER ARCHITECTURE AND PROCESS OF USER EVALUATION
ARCHITECTURE INFORMATIQUE ET PROCEDE D'EVALUATION D'UTILISATEUR
Patent Applicant/Assignee:
AMERICAN BOARD OF FAMILY MEDICINE INC, 2228 Young Drive, Lexington, KY 40505, US, US (Residence), US (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
SUMNER Walton II, 7 Old Westbury Lane, Webster Groves, MO 63119, US, US (Residence), US (Nationality), (Designated only for: US)
XU Jinzhong, 4877 Keats Grove Lane, Lexington, KY 40513, US, US (Residence), CN (Nationality), (Designated only for: US)
ROUSSEL Guy H, 611 Elsmere Park, Lexington, KY 40508, US, US (Residence), US (Nationality), (Designated only for: US)
ROVINELLI Richard J, 2504 Mansion View Court, Lexington, KY 40513, US, US (Residence), US (Nationality), (Designated only for: US)
HAGEN Michael D, 2012 Blairmore Road, Lexington, KY 40502, US, US (Residence), US (Nationality), (Designated only for: US)
Legal Representative:
EAVES James C Jr (agent), Greenebaum Doll & McDonald PLLC, 3500 National City Tower, 101 South Fifth Street, Louisville, KY 40202, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200555011 A2 20050616 (WO 0555011)
Application: WO 2004US39891 20041129 (PCT/WO US04039891)
Priority Application: US 2003525641 20031129
Designated States:
(All protection types applied unless otherwise stated - for applications 2004+)
AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LU MC NL PL PT RO SE SI SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) BW GH GM KE LS MW MZ NA SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 18845

Fulltext Availability:
Detailed Description

Detailed Description
... Generator and an input Criterion in an Evaluator simultaneously.

[01191 An Evaluator implemented as a **Bayesian** network can represent a variety of mathematical calculations, stochastic **processes** , and text concatenations **simultaneously** . Although 44
an Evaluator is defined in the knowledge base, it can execute arbitrarily complex...

...one of a Relational
Condition and a Criterion to define the state of an input **Bayesian** node, and selects the first state in each node where the virtual patient has a...

15/3,K/12 (Item 12 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00934807 **Image available**
METHODS FOR PROVIDING EXTENDED DYNAMIC RANGE IN ANALYTE ASSAYS
PROCEDES PERMETTANT D'ETENDRE L'ECHELLE DYNAMIQUE DANS DES DOSAGES D'ANALYTES

Patent Applicant/Assignee:
GENICON SCIENCES CORPORATION, 11585 Sorrento Valley Road, San Diego, CA 92121, US, US (Residence), US (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
YGUERABIDE Juan, 9505 Poole Street, La Jolla, CA 92037, US, US (Residence), US (Nationality), (Designated only for: US)
YGUERABIDE Evangelina, 9505 Poole Street, La Jolla, CA 92037, US, US (Residence), US (Nationality), (Designated only for: US)
WARDEN Laurence, 12913 Camino Del Valle, Poway, CA 92064, US, US (Residence), US (Nationality), (Designated only for: US)
PETERSON Todd, 32 Catspaw Cape, Coronado, CA 92118, US, US (Residence), US (Nationality), (Designated only for: US)
Legal Representative:
CORUZZI Laura A (et al) (agent), Pennie & Edmonds LLP, 1155 Avenue of the Americas, New York, NY 10036, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200268932 A2-A3 20020906 (WO 0268932)
Application: WO 2002US5928 20020225 (PCT/WO US02005928)
Priority Application: US 2001271089 20010223
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 95146

Fulltext Availability:
Detailed Description

Detailed Description
... 800) and image processor (900) which in turn are part of or attached to a **microprocessor** controller or computer (I 000) which controls the transfer of the digitized images to the...unit area which are constant over some period of time. Particles free in solution undergoing **brownian** motion or other types of motion results in variable scattered light intensity per unit area...film above the surface. Free particles are distinguished from attached particles by their 1 5 **Brownian** motion which is absent in attached particles. hi the following sections we describe the details...of light illumination and detection. The material appeared homogeneous, the particles moving very fast in **Brownian** motion with a green color. We then removed the coverslip, and placed a drop of ...peptides, receptors, pharmaceutical agents, honnones and the like.

iii. DetectionandCharacterizationofMolecularBindingEvents
In another illustrative example, the **Brownian** motion of a particle that is coated with a binding agent can be used in...

15/3,K/13 (Item 13 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00920221 **Image available**
SYSTEM, PROCESS AND SOFTWARE ARRANGEMENT FOR ASSISTING WITH A KNOWLEDGE DISCOVERY
ARRANGEMENT DE SYSTEME, PROCEDE ET LOGICIEL POUR AIDE A PROCEDE DE DECOUVERTE DE CONNAISSANCES

Patent Applicant/Assignee:
NEW YORK UNIVERSITY, 70 Washington Square South, New York, Ny New York 10012-1091, US, US (Residence), US (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
PROVOST Foster, 1 Washington Square Village, Apt. 14H, New York, NY 10012 , US, US (Residence), US (Nationality), (Designated only for: US)
BERNSTEIN Abraham, 4 Washington Square Village, Apt. 4RT, New-York, NY 10012, US, US (Residence), CH (Nationality), (Designated only for: US)
Legal Representative:
ABELEV Gary (agent), Baker Botts LLP, 30 Rockefeller Plaza, New York, NY 10112-0228, US,

Patent and Priority Information (Country, Number, Date):
Patent: WO 200254272 A1 20020711 (WO 0254272)
Application: WO 2002US545 20020104 (PCT/WO US02000545)
Priority Application: US 2001259780 20010104
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 11307

Fulltext Availability:
Claims

Claim
... of the "discretize" node leafs of the pre-processing group 3 1 0, the "Naive **Bayes** " node leafs of the induction algorithm group 320 and the "Tree Pruning" node leafs of...an ability to execute two or more of the KD processes (or a set of **processes**) **simultaneously** .
Figure 9 shows a functional diagram of an exemplary embodiment of the implementation of the...

21/3,K/13 (Item 13 from file: 348)
DIALOG(R)File 348:EUROPEAN PATENTS

01414919
Systems and method for diagnosing electronic systems
System und Verfahren zur Diagnose von elektronischen Systemen
Systeme et methode pour diagnostiquer des systemes electroniques
PATENT ASSIGNEE:
Xerox Corporation, (219787), Xerox Square - 20A, 100 Clinton Avenue South , Rochester, New York 14644, (US), (Applicant designated States: all)
INVENTOR:
Siegel, Robert P., 52 Woodside Drive, Penfield, New York 14526, (US)
O'Leyar, Stephen C., 55 Hulbert Avenue, Fairport, New York 14450, (US)
Gerner, Bradley J., 922 N. Landing Road, Rochester, New York 14626, (US)
LEGAL REPRESENTATIVE:
Skone James, Robert Edmund (50281), GILL JENNINGS & EVERY Broadgate House 7 Eldon Street, London EC2M 7LH, (GB)
PATENT (CC, No, Kind, Date): EP 1195681 A2 020410 (Basic)
EP 1195681 A3 030326
APPLICATION (CC, No, Date): EP 2001308269 010927;
PRIORITY (CC, No, Date): US 678319 001003
DESIGNATED STATES: DE; FR; GB
EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI
INTERNATIONAL PATENT CLASS: **G06F-011/273**
ABSTRACT WORD COUNT: 240
NOTE:
Figure number on first page: 1

LANGUAGE (Publication,Procedural,Application): English; English; English
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200215	457
SPEC A	(English)	200215	7968
Total word count - document A			8425
Total word count - document B			0
Total word count - documents A + B			8425

INTERNATIONAL PATENT CLASS: **G06F-011/273**

...SPECIFICATION or a qualitative state estimation technique, model-based diagnostic technology, a look-up table, a **neural** - **network** -based analysis, a **fuzzy** - **logic** -based analysis, a **bayesian** network, a causal network, a rule-based system analysis and/or an **expert** **system** .

In various exemplary embodiments, the remote diagnostic system analyzes the data using signature analysis. In...prognostic technologies, for example, model-based diagnosis, discrete event systems diagnosis, bayesian networks, causal networks, **neural** **networks** , **artificial** **intelligence** , rule-based systems, **expert** **systems** , **fuzzy** **logic** analysis, and/or look-up tables or any other known or later developed diagnostic/prognostic...

...a qualitative state estimation technique, a model-based diagnostic technology, a look-up table, a- **neural** - **network** -based analysis, a **fuzzy** - **logic** -based analysis, a **bayesian** network, a causal network, a rule-based system analysis and/or an **expert** **system** , or any other known or later developed data analysis technique.
Based on the analysis of...

...CLAIMS a qualitative state estimation technique, a model-based diagnostic technology, a look-up table, a **neural** - **network** -based analysis, a **fuzzy** - **logic** -based analysis, a **bayesian** network, a causal network, a rule-based system analysis and an **expert** **system**

21/3,K/21 (Item 21 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

01139233 **Image available**
ENHANCED COMPUTER-ASSISTED MEDICAL DATA PROCESSING SYSTEM AND METHOD
SYSTEME ET PROCEDE INFORMATISE AMELIORE DE TRAITEMENT DE DONNEES MEDICALES
Patent Applicant/Assignee:
GE MEDICAL SYSTEMS GLOBAL TECHNOLOGY COMPANY LLC a Delaware Limited Liability Company, 3000 North Grandview Boulevard, Waukesha, WI 53188-1696, US, US (Residence), US (Nationality)
Inventor(s):
AVINASH Gopal B, 4915 South Radisson Court, New Berlin, WI 53151, US,
SABOL John M, N58 W24838 Cardinal Ct., Sussex, WI 53089, US,
WALKER Matthew J, 3175 South Stone Gate Circle, Apt. 107, New Berlin, WI 53151, US,
Legal Representative:
HAYDEN Scott (et al) (agent), General Electric Company, 3135 Easton Turnpike (W3C), Fairfield, CT 06828, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200461744 A2-A3 20040722 (WO 0461744)
Application: WO 2003US37102 20031120 (PCT/WO US03037102)
Priority Application: US 2002324046 20021218
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SK SL TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT RO SE SI SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) BW GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 50012

Main International Patent Class: **G06F-019/00**
Fulltext Availability:
Detailed Description

Detailed Description
... be used to classify the regions of interest as benign or malignant nodules. Bayesian classifiers, **neural networks** , rule-based methods, **fuzzy logic** or other suitable techniques can be used for classification. It should be noted here that...

21/3,K/23 (Item 23 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

01139177 **Image available**
MEDICAL DATA ANALYSIS METHOD AND APPARATUS INCORPORATING IN VITRO TEST DATA
PROCEDE ET APPAREIL D'ANALYSE DE DONNEES MEDICALES, INCORPORANT DES DONNEES DE TEST <I>IN VITRO</I>
Patent Applicant/Assignee:
GE MEDICAL SYSTEMS GLOBAL TECHNOLOGY COMPANY LLC, 3000 North Grandview Boulevard, Waukesha, WI 53188-1696, US, US (Residence), US (Nationality)
Inventor(s):
AVINASH Gopal B, 4915 South Radisson Court, New Berlin, WI 53151, US,
WALKER Matthew J, 3175 South Stone Gate Circle, Apt. 107, New Berlin, WI 53151, US,
SABOL John M, N58 W24838 Cardinal Ct., Sussex, WI 53089, US,
Legal Representative:
HAYDEN Scott (et al) (agent), General Electric Company, 3135 Easton Turnpike (W3C), Fairfield, CT 06828, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200461742 A2-A3 20040722 (WO 0461742)
Application: WO 2003US36330 20031113 (PCT/WO US03036330)
Priority Application: US 2002323260 20021218
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SK SL TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT RO SE SI SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) BW GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 49993

Main International Patent Class: **G06F-019/00**
Fulltext Availability:
Claims

Claim
... implemented as "tool kits" which are called upon by the algorithm and developed by programming, **expert systems** ,, neural ne tworks, and so forth as discussed above. The [k] level of the CAX...

...algorithm can be used to- classify the regions of interest as benign or malignant nodules. **Bayesian** classifiers, 1neural networks , rule-based methods, **fuzzy logic** or other suitable techniques can be used for classification. It should be noted here that...

21/3,K/24 (Item 24 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

01137862
METHOD AND SYSTEM FOR DIAGNOSTICS AND PROGNOSTICS OF A MECHANICAL SYSTEM
PROCEDE ET SYSTEME DE DIAGNOSTIC ET PREVISION D'UN SYSTEME MECANIQUE
Patent Applicant/Assignee:
RSL ELECTRONICS LTD, P.O. Enclosure 21, 10550 Migdal Haemek, IL, IL (Residence), IL (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
KLEIN Renata, Gilon, D.N., 20103 Misgav, IL, IL (Residence), IL (Nationality), (Designated only for: US)
Legal Representative:
EITAN PEARL LATZER & COHEN-ZEDEK (et al) (agent), 2 Gav Yam Center, 7 Shenkar Street, 46725 Herzlia, IL,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200459399 A2-A3 20040715 (WO 0459399)
Application: WO 2003IL1107 20031228 (PCT/WO IL03001107)
Priority Application: US 2002334477 20021230
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT SE SI SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 24530

Main International Patent Class: **G06F-011/30**
International Patent Class: **G06F-015/00** ...
Fulltext Availability:
Detailed Description

Detailed Description
... rotating speeds. The extracted features are then aggregated, quantized, and classified using a variety of **artificial intelligence** techniques, including **neural networks** , support vectors machine, fuzzy adaptive 1 0 resonance theory ("fuzzy-ART"), K-nearest neighbor, and **expert systems** , such as **fuzzy logic** and **Bayesian** networks. Thereafter, a hybrid **artificial intelligence** technique is used to diagnose and/or provide a prognosis for the monitored mechanical system ...classifiers indicate specific faults, the confidence level is decreased.

As shown in Figure 9, different **artificial intelligence** techniques are used to classify the features of each group according to the related knowledge...

...gas path trends, where extensive a priori knowledge is available for a rule base, an **expert system** based on fuzzy or deterministic logic 522, 532, is employed. Furthermore,where information on probability distribution is available, **Bayesian** Networks may be
42
SUBSTITUTE SHEET (RULE 26)
used. **Expert systems** employ classification methods that formulate the expert knowledge into a classification decision, e.g. decision trees and

21/3,K/25 (Item 25 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT
(c) 2005 WIPO/Univentio. All rts. reserv.

01130116 **Image available**
DIAGNOSTIC SYSTEM AND METHOD FOR ENABLING MULTISTAGE DECISION OPTIMIZATION FOR AIRCRAFT PREFLIGHT DISPATCH
SYSTEME DE DIAGNOSTIC ET PROCEDE D'OPTIMISATION DE LA PRISE DE DECISION A ETAPES MULTIPLES CONCERNANT LA DISPONIBILITE PREVOL D'UN AERONEF
Patent Applicant/Assignee:
THE BOEING COMPANY, P.O. Box 3707, M/S 11-XT, Seattle, WA 98124-2207, US, US (Residence), US (Nationality)
Inventor(s):
KIPERSZTOK Oscar, 7536 146th Avenue NE, Redmond, WA 98052, US,
DILDY Glenn A, 2156 NE 9th Place, Redmond, WA 98053, US,
Legal Representative:
GALBRAITH Ann K (agent), The Boeing Company, P.O. Box 3707, M/S 11-XT, Seattle, WA 98124-2207, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200451404 A2-A3 20040617 (WO 0451404)
Application: WO 2003US37539 20031124 (PCT/WO US03037539)
Priority Application: US 2002310165 20021204
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SL TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW
(EP) AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL PT RO SE SI SK TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) BW GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 11922

Main International Patent Class: **G06F-019/00**
Fulltext Availability:
Detailed Description

Detailed Description
... diagnostic system 10 may construct a diagnostic model utilizing model-based or case-based reasoning, **Bayesian** networks, **neural networks** , **fuzzy logic** , **expert systems** or the like. Because **Bayesian** networks can accept reliability data as well as information from other sources, such as systemic...

...for prioritizing suspect components, the extended VOI diagnostic model is preferably constructed based upon a **Bayesian** network that is capable of being updated. See, for example, S.L. Lauritzen et a[., Local Computations With Probabilities on Graphical Structures and Their Applications to **Expert Systems** , Journal of the Royal Statistical Society B, Vol. 50, pp.

157-224 (1988), incorporated herein...

21/3,K/30 (Item 30 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00974194 **Image available**
DATA INPUT DEVICE
DISPOSITIF D'ENTREE DE DONNEES
Patent Applicant/Assignee:
KONINKLIJKE PHILIPS ELECTRONICS N V, Groenewoudseweg 1, NL-5621 BA Eindhoven, NL, NL (Residence), NL (Nationality)
Inventor(s):
THOMASON Graham G, Internationaal Octrooibureau B.V., Prof. Holstlaan 6, NL-5656 AA Eindhoven, NL,
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Legal Representative:
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Patent and Priority Information (Country, Number, Date):
Patent: WO 200303181 A2-A3 20030109 (WO 0303181)
Application: WO 2002IB2405 20020620 (PCT/WO IB0202405)
Priority Application: GB 200115822 20010628
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
CN JP KR
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
Publication Language: English
Filing Language: English
Fulltext Word Count: 5581

Main International Patent Class: **G06F-003/023**
Fulltext Availability:
Detailed Description

Detailed Description
... may be matched on fuzzy
criteria. Neural networks, Bayesian reasoning, or hidden Markov chains, or **fuzzy logic** may be used to obtain the matching characters for selection, for
example to identify those...

21/3,K/31 (Item 31 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00969509 **Image available**
SYSTEM AND METHOD FOR MANAGING WELDING INFORMATION
SYSTEME ET PROCEDE DE GESTION D'INFORMATIONS DE SOUDAGE
Patent Applicant/Assignee:
LINCOLN GLOBAL INC, 1200 Monterey Pass Road, Monterey Park, CA 44024, US, US (Residence), US (Nationality)
Inventor(s):
SPEAR Theresa M, 6253 Coldstream Road, Highland Heights, OH 44143, US,
BLANKENSHIP George Daryl, 12221 Bradford Drive, Chardon, OH 44024, US,
Legal Representative:
AMIN Himanshu S (et al) (agent), Amin & Turocy, LLP, 1900 E. 9th Street, 24th Floor, National City Center, Cleveland, OH 44114, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 2002103567 A1 20021227 (WO 02103567)
Application: WO 2002US14468 20020508 (PCT/WO US0214468)
Priority Application: US 2001883588 20010618
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ
EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR
LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI
SK SL TJ TM TN TR TT TZ UA UG UZ VN YU ZA ZM ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 9919

Main International Patent Class: **G06F-017/30**
Fulltext Availability:

Detailed Description
... welding information. The search component 140 can employ various techniques (e.g., based upon a **Bayesian** model, an **artificial intelligence** model, probability tree networks, **fuzzy logic** and/or **neural network**) when searching for welding information. The search 1 5 component 140 can search, for example ...search component 852 can employ various techniques (e.g., based upon a Bayesian model, an **artificial intelligence** model, probability tree networks, **fuzzy logic** and/or **neural network**) when searching for welding information. The search component 852 can searclijor example, the welding information...search component 940 can employ various techniques (e.g., based upon a Bayesian model, an **artificial intelligence** model, probability tree networks, **fuzzy logic** and/or **neural network**) when searching for potentially suitable welding procedure(s).

The design of experiment(s) component 950...

Claim
... welder (I 04, 804) using one of a Bayesian model, a probability tree network, an **artificial intelligence** model, a **fuzzy logic** model and a **neural network** .

21/3,K/36 (Item 36 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00799832 **Image available**
ROBUSTNESS AND NOTIFICATIONS IN TRAVEL PLANNING SYSTEM
INFORMATIONS ROBUSTES ET NOTIFICATIONS DANS UN SYSTEME DE PLANIFICATION DE VOYAGE
Patent Applicant/Assignee:
ITA SOFTWARE INC, Building 400, One Kendall Square, Cambridge, MA 02139, US, US (Residence), US (Nationality), (For all designated states except: US)
Patent Applicant/Inventor:
GALPERIN Gregory R, 16 Bristol Street #2, Cambridge, MA 02141, US, US (Residence), US (Nationality), (Designated only for: US)
DEMARCKEN Carl G, 16 Bristol Street #2, Cambridge, MA 02141, US, US (Residence), US (Nationality), (Designated only for: US)
Legal Representative:
MALONEY Denis G (agent), Fish & Richardson, P.C., 225 Franklin Street, Boston, MA 02110-2804, US,
Patent and Priority Information (Country, Number, Date):
Patent: WO 200133399 A2 20010510 (WO 0133399)
Application: WO 2000US30060 20001101 (PCT/WO US0030060)
Priority Application: US 99162869 19991101
Parent Application/Grant:
Related by Continuation to: US 99162869 19991101 (CIP)
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE DK DM DZ EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 5546

Main International Patent Class: **G06F-017/60**
Fulltext Availability:
Detailed Description

Detailed Description
... time to compute the probabilities of delay.
Alternatively, the tardiness model 52 may be a **machine learning** model such as a **neural network** , support vector machine, radial basis function, linear or polynomial discriminant function, exponential function, decision tree, nearest-neighbor model, classifier system, naive **Bayes** model, **fuzzy logic** model, genetic algorithm, graphical model, or **Bayesian** belief network which expresses a functional mapping between a possible delay for a flight and...

...amount of lateness (which may
5 or may note be quantized into a range) the **machine learning** model producing a probability that the identified flight will be delayed by the specified amount...

21/3,K/37 (Item 37 from file: 349)
DIALOG(R)File 349:PCT FULLTEXT

00767680 **Image available**
METHOD AND SYSTEM FOR ACCESSING MEDICAL DATA
PROCEDE ET SYSTEME D'ACCES A DES DONNEES MEDICALES
Patent Applicant/Assignee:
INTERNATIONAL DIAGNOSTIC TECHNOLOGY INC, 121 Yancy Road, Madison, AL 35758, US, US (Residence), US (Nationality)
Inventor(s):
MADARASZ Frank L, 121 Yancy Road, Madison, AL 35758, US
INGUVA Ramarao, 1200 Siniard Drive, Huntsville, AL 35803, US
WYLY James K, 18 Buckingham Drive, Bow, NH 03304, US
MILELLI Joseph, 684 Carnellon Court, Simi Valley, CA 93065, US
KRIVOSHIK David P, 113 Wertsville Road, Ringoes, NJ 08551-1108, US
Legal Representative:
FERRONE Diane, Gibbons, Del Deo, Dolan, Griffinger & Vecchione, One Riverfront Plaza, Newark, NJ 07102, US
Patent and Priority Information (Country, Number, Date):
Patent: WO 200101305 A1 20010104 (WO 0101305)
Application: WO 2000US10727 20000420 (PCT/WO US0010727)
Priority Application: US 99141191 19990625; US 2000495185 20000201; US 2000553162 20000419
Designated States:
(Protection type is "patent" unless otherwise stated - for applications prior to 2004)
AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG UZ VN YU ZA ZW
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE
(OA) BF BJ CF CG CI CM GA GN GW ML MR NE SN TD TG
(AP) GH GM KE LS MW SD SL SZ TZ UG ZW
(EA) AM AZ BY KG KZ MD RU TJ TM
Publication Language: English
Filing Language: English
Fulltext Word Count: 6422

Main International Patent Class: **G06F-017/60**
Fulltext Availability:
Detailed Description

Detailed Description
... of Al. What is proposed for the SMDB can be classified under specific components of **AI** : Logical Al, Inference, and Learning from Experience. Learning
from Experience is the area of "smartness" in the SMDB. The tools most commonly employed to implement this component are connectionism, **neural networks** , semiotics, and **fuzzy logic** . The present invention add the use of
Bayesian Statistics. The **Bayesian** Method specifically focuses on a predictive/learning capability. Moreover, its statistics are very well developed...

...tools presently being used in Al. The present invention is not limited exclusively to the **Bayesian** Method for the Learning from Experience component of the SMDB, but consider all viable tools...

```
Set     Items   Description
S1     175464   PARALLEL()PROCESS? OR PROCESS?(3N)(SAME()TIME OR SIMULTANE-
             OUS? OR SYNCHRONOUS OR SYNCHRONI?E? ? OR SYNCHRONI?ING  OR SY-
             MMETRIC? OR SYMMETRY)
S2      26138   (PLURAL? OR MORE()THAN()ONE OR MANY OR SEVERAL OR MULTIPLE?
              ? OR MULTIPLICITY OR VARIOUS OR NUMEROUS OR MYRIAD OR SECOND?
              OR 2ND OR PRIMARY OR THOUSAND? ? OR MILLION? ? OR HUNDRED? ?-
             )(3N)(CPU? ? OR PROCESSOR? ? OR PROCESSING()UNIT? ? OR MICROP-
             ROCESSOR? ?)
S3    1100661   (NEURAL()(NET? ? OR NETWORK? OR SYSTEM? ?)) OR ((MACHINE? ?
              OR AUTOMATIC? OR AUTOMATE? ? OR AUTOMATING OR AUTOMATION OR -
             COMPUTER? ?)()(LEARN? OR TRAIN? OR DECISION()MAKING OR INTELL-
             IGENCE)) OR NEUROCOMPUT? OR EXPERT()SYSTEM? ? OR ARTIFICIAL()-
             INTELLIGENCE
S4      53193   BROWNIAN
S5      99818   BAYES OR BAYESIAN
S6      46489   (CONVERT?R? ? OR CONVERT? ? OR CONVERTED OR CONVERTING OR -
             CHANGE? ? OR CHANGING OR TRANSLATE? ? OR TRANSLATOR OR TRANSL-
             ATING OR TRANSLATION? ? OR TRANSFER? ? OR TRANFERED OR TRANFE-
             RING OR TRANSFORM?? OR TRANFORMING OR TRANFORMATION)(3N) (LAN-
             GUAGE? ? OR CO
S7      68151   FUZZY()LOGIC
S8        215   S4 AND S5
S9          1   S8 AND (S1 OR S2) AND S3
S10         1   S8 AND (S1 OR S2)
S11        14   S8 AND S3
S12        14   S11 NOT PY>2002
S13        14   RD (unique items)
S14    152796   S4 OR S5
S15        78   S14 AND (S1 OR S2) AND S3
S16        74   S15 NOT PY>2002
S17        56   RD (unique items)
S18        55   S17 NOT S13
S19         0   S18 AND (S6 OR S7)
File   8:Ei Compendex(R) 1970-2005/Jul W2
         (c) 2005 Elsevier Eng.  Info. Inc.
File  35:Dissertation Abs Online 1861-2005/Jun
         (c) 2005 ProQuest Info&Learning
File  65:Inside Conferences 1993-2005/Jul W3
         (c) 2005 BLDSC all rts. reserv.
File   2:INSPEC 1969-2005/Jul W2
         (c) 2005 Institution of Electrical Engineers
File  94:JICST-EPlus 1985-2005/May W5
         (c)2005 Japan Science and Tech Corp(JST)
File 111:TGG Natl.Newspaper Index(SM) 1979-2005/Jul 19
         (c) 2005 The Gale Group
File   6:NTIS 1964-2005/Jul W2
         (c) 2005 NTIS, Intl Cpyrght All Rights Res
File 144:Pascal 1973-2005/Jul W2
         (c) 2005 INIST/CNRS
File 434:SciSearch(R) Cited Ref Sci 1974-1989/Dec
         (c) 1998 Inst for Sci Info
File  34:SciSearch(R) Cited Ref Sci 1990-2005/Jul W2
         (c) 2005 Inst for Sci Info
File  62:SPIN(R) 1975-2005/May W2
         (c) 2005 American Institute of Physics
File  99:Wilson Appl. Sci & Tech Abs 1983-2005/Jun
         (c) 2005 The HW Wilson Co.
File  95:TEME-Technology & Management 1989-2005/Jun W2
         (c) 2005 FIZ TECHNIK
File 155:MEDLINE(R) 1951-2005/Jul W3
         (c) format only 2005 The Dialog Corp.
```

13/5/1 (Item 1 from file: 35)
DIALOG(R)File 35:Dissertation Abs Online

01495861 ORDER NO: NOT AVAILABLE FROM UNIVERSITY MICROFILMS INT'L.
NEURAL NETWORKS **FOR PLANNING AND CONTROL IN COMMUNICATION NETWORKS**
Author: MURGU, ALEXANDRU
Degree: DR.PHIL.
Year: 1995
Corporate Source/Institution: JYVASKYLAN YLIOPISTO (FINLAND) (0979)
Source: VOLUME 57/03-C OF DISSERTATION ABSTRACTS INTERNATIONAL.
PAGE 956. 204 PAGES
Descriptors: MATHEMATICS ; COMPUTER SCIENCE
Descriptor Codes: 0405; 0984
ISBN: 951-34-0565-6
Publisher: UNIVERSITY OF JYVASKYLA, SEMINAARINKATU 15, SF-40100 JYVASKYLA, FINLAND

The aim of this thesis is to apply the artificial **neural networks** paradigm to flow routing/control in communication networks based on a dual approach: planning and control. The planning approach is related to an open loop control where the levels of performance are a priori imposed on the structure of the communication networks, while the control approach resides in a general closed loop approach where the performance of the system is obtained as the result of some adaptation mechanism.

The main contributions of this thesis can be summarized as follows: (1) Setting up the planning, control and layered planning-control architectures for different communication flow models with a particular emphasis on parallel link switching and trunk group design. (2) Developing a stochastic approximation framework for analyzing the switching control policies by using Markov decision process and **Brownian** motion models. Periodic control policies for describing the statistically flow switching process in ATM networks are considered. (3) The problem of flow planning is considered within the frame of aggregation/disaggregation approach for large scale Linear Programming models. Lagrangian relaxations for capacitated call processing server are considered toward a mapping onto dynamical system solvers. The planning/control duality is correspondingly emphasised while developing the Hopfield **neural network** solver as a control system based on a sliding modes approach. (4) The stochastic approximation development for communication network flow models is specifically used to build adaptive flow control schemes based on stochastic estimation with feedforward **neural networks** . The **Bayesian** adaptive control and reference model approaches for mean flow estimation through least squares is the main feature. The second feature is given by the idea of using a pattern recognition technique over an integrated state-control structure in order to synthesize the control by using feedforward **neural networks** . (5) Specific problems from flow planning/control design are considered for mapping onto **neural networks** solvers as follows: (a) Dynamic priority assignment within multiple class queues; (b) Flow assignment by Hopfield **neural networks** (at the link level); (c) Flow multiplexing in ATM networks based on stochastic approximation; (d) Deterministic flow control (at the link level); (e) Parameter estimation for routing/flow control; (f) Adaptive control for trunk group flows in ATM networks. (Abstract shortened by UMI.)

01473289 ORDER NO: AADAA-INN02676
BAYESIAN **LEARNING FOR** NEURAL NETWORKS (MACHINE LEARNING)
Author: NEAL, RADFORD M.
Degree: PH.D.
Year: 1995
Corporate Source/Institution: UNIVERSITY OF TORONTO (CANADA) (0779)
Adviser: GEOFFREY HINTON
Source: VOLUME 56/12-B OF DISSERTATION ABSTRACTS INTERNATIONAL.
PAGE 6870. 203 PAGES
Descriptors: COMPUTER SCIENCE ; **ARTIFICIAL INTELLIGENCE**
Descriptor Codes: 0984; 0800
ISBN: 0-315-02676-0

Two features distinguish the **Bayesian** approach to learning models from data. First, beliefs derived from background knowledge are used to select a prior probability distribution for the model parameters. Second, predictions of future observations are made by integrating the model's predictions with respect to the posterior parameter distribution obtained by updating this prior to take account of the data. For **neural network** models, both these aspects present difficulties--the prior over network parameters has no obvious relation to our prior knowledge, and integration over the posterior is computationally very demanding.

I address the first problem by defining classes of prior distributions for network parameters that reach sensible limits as the size of the network goes to infinity. In this limit, the properties of these priors can be elucidated. Some priors converge to Gaussian processes, in which functions computed by the network may be smooth, **Brownian** , or fractionally **Brownian** . Other priors converge to non-Gaussian stable processes. Interesting effects are obtained by combining priors of both sorts in networks with more than one hidden layer.

The problem of integrating over the posterior can be solved using Markov chain Monte Carlo methods. I demonstrate that the hybrid Monte Carlo algorithm, which is based on dynamical simulation, is superior to methods based on simple random walks.

I use a hybrid Monte Carlo implementation to test the performance of **Bayesian neural network** models on several synthetic and real data sets. Good results are obtained on small data sets when large networks are used in conjunction with priors designed to reach limits as network size increases, confirming that with **Bayesian** learning one need not restrict the complexity of the network based on the size of the data set. A **Bayesian** approach is also found to be effective in automatically determining the relevance of inputs.

13/5/7 (Item 5 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

05607407 Genuine Article#: WK686 Number of References: 37
Title: Cluster-based probability model and its application to image and texture processing
Author(s): Popat K (REPRINT) ; Picard RW
Corporate Source: MIT,MEDIA LAB, 77 MASSACHUSETTS AVE/CAMBRIDGE//MA/02139 (REPRINT)
Journal: IEEE TRANSACTIONS ON IMAGE PROCESSING, 1997, V6, N2 (FEB), P 268-284
ISSN: 1057-7149 Publication date: 19970200
Publisher: IEEE-INST ELECTRICAL ELECTRONICS ENGINEERS INC, 345 E 47TH ST, NEW YORK, NY 10017-2394
Language: English Document Type: ARTICLE
Geographic Location: USA
Subfile: CC ENGI--Current Contents, Engineering, Computing & Technology
Journal Subject Category: ENGINEERING, ELECTRICAL & ELECTRONIC; COMPUTER SCIENCE, SOFTWARE, GRAPHICS, PROGRAMMING; COMPUTER SCIENCE, THEORY & METHODS
Abstract: We develop, analyze, and apply a specific form of mixture modeling for density estimation within the context of image and texture processing, The technique captures much of the higher order, nonlinear statistical relationships present among vector elements by combining aspects of kernel estimation and cluster analysis. Experimental results are presented in the following applications: image restoration, image and texture compression, and texture classification.
Identifiers--KeyWord Plus(R): MAXIMUM-LIKELIHOOD; EM ALGORITHM
Research Fronts: 95-2431 002 (**NEURAL NETWORKS** ; FUZZY MODEL-REFERENCE ADAPTIVE-CONTROL; NONLINEAR DISCRETE-TIME MULTIVARIABLE DYNAMICAL-SYSTEMS)
95-4653 002 (EM ALGORITHM; PLAYERS MODELS; MIXTURE LIKELIHOOD APPROACH)
95-4661 002 (NONPARAMETRIC REGRESSION; QUALITATIVE SMOOTHING; BANDWIDTH SELECTION; FREQUENCY FUNCTION; BINARY CHOICE MODEL; GROWTH CURVE ANALYSIS)
95-6696 002 (**NEURAL NETWORKS** ; LINEAR ADAPTIVE DECORRELATOR FOR SIGNAL SEPARATION; NONLINEAR EXTENSION OF THE GENERALIZED HEBBIAN LEARNING)
95-0847 001 (GIBBS SAMPLING; COMPUTER VISION; **BAYESIAN** -ANALYSIS OF 2 OVERDISPERSED POISSON MODELS; ANNEALING MARKOV-CHAIN MONTE-CARLO; OBJECT POSE; MACHINE RECOGNITION)
95-0873 001 (SYMBOLIC OBJECTS; DESIGN OF **NEURAL NETWORKS** ; KNOWLEDGE-BASED SYSTEMS)
95-1928 001 (FRACTIONAL **BROWNIAN** -MOTION; TEXTURE SEGMENTATION USING FRACTAL DIMENSION; LONG MEMORY TIME-SERIES)
95-6113 001 (VECTOR QUANTIZATION; IMAGE COMPRESSION; OPTIMAL ADAPTIVE K-MEANS ALGORITHM)
Cited References:
BESAG J, 1974, V36, P192, J ROY STAT SOC B MET
BRODATZ P, 1966, TEXTURES PHOTOGRAPHI
COVER TM, 1991, ELEMENTS INFORMATION
DEMPSTER AP, 1977, V39, P1, J ROY STAT SOC B MET
DEVROYE L, 1987, COURSE DENSITY ESTIM
DUDA RO, 1973, PATTERN CLASSIFICATI
EVERITT BS, 1981, FINITE MIXTURE DISTR
GERSHO A, 1990, V38, P1285, IEEE T COMMUN
GERSHO A, 1991, VECTOR QUANTIZATION
HAND DJ, 1982, KERNEL DISCRIMINANT
HAYKIN S, 1994, NEURAL NETWORK COMPR
HERTZ J, 1991, INTRO THEORY NEURAL
JAIN AK, 1988, ALGORITHMS CLUSTERIN
LANGDON G, 1992, P IEEE DAT COMP C
LANGDON GG, 1984, IBM J RES DEV MAR

18/5/2 (Item 2 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

05686469 E.I. No: EIP00105377910
Title: Neural network **modelling with input uncertainty: Theory and application**
Author: Wright, W.A.; Ramage, G.; Cornford, D.; Nabney, I.T.
Corporate Source: Sowerby Research Cent, Bristol, UK
Source: Journal of VLSI Signal Processing Systems for Signal, Image, and Video Technology v 26 n 1 Aug 2000. p 169-188
Publication Year: 2000
CODEN: JVSPED ISSN: 0922-5773
Language: English
Document Type: JA; (Journal Article) Treatment: A; (Applications); T; (Theoretical)
Journal Announcement: 0012W1
Abstract: It is generally assumed when using **Bayesian** inference methods for **neural networks** that the input data contains no noise. For real-world (errors in variable) problems this is clearly an unsafe assumption. This paper presents a **Bayesian neural network** framework which accounts for input noise provided that a model of the noise process exists. In the limit where the noise **process** is small and **symmetric** it is shown, using the Laplace approximation, that this method adds an extra term to the usual **Bayesian** error bar which depends on the variance of the input noise process. Further, by treating the true (noiseless) input as a hidden variable, and sampling this jointly with the network's weights, using a Markov chain Monte Carlo method, it is demonstrated that it is possible to infer the regression over the noiseless input. This leads to the possibility of training an accurate model of a system using less accurate, or more uncertain, data. This is demonstrated on both the, synthetic, noisy sine wave problem and a real problem of inferring the forward model for a satellite radar backscatter system used to predict sea surface wind vectors. (Author abstract) 16 Refs.
Descriptors: ***Neura** l **networks** ; Spurious signal noise; Interference suppression; Learning systems; Monte Carlo methods; Markov processes; Laplace transforms; Approximation theory; Mathematical models
Identifiers: **Bayesian** interfaces; Laplace approximation
Classification Codes:
723.4 (Artificial Intelligence); 716.1 (Information & Communication Theory); 922.2 (Mathematical Statistics); 922.1 (Probability Theory); 921.3 (Mathematical Transformations)
723 (Computer Software); 716 (Radar, Radio & TV Electronic Equipment); 922 (Statistical Methods); 921 (Applied Mathematics)
72 (COMPUTERS & DATA PROCESSING); 71 (ELECTRONICS & COMMUNICATIONS); 92 (ENGINEERING MATHEMATICS)

18/5/8 (Item 8 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

04809993 E.I. No: EIP97093808388
Title: Parallel hybrid genetic algorithm simulated annealing approach to finding most probable explanations on Bayesian **belief networks**
Author: Abdelbar, Ashraf M.; Hedetniemi, Sandra M.
Corporate Source: American Univ in Cairo, Cairo, Egypt
Conference Title: Proceedings of the 1997 IEEE International Conference on Neural Networks. Part 1 (of 4)
Conference Location: Houston, TX, USA Conference Date: 19970609-19970612
Sponsor: IEEE
E.I. Conference No.: 46924
Source: IEEE International Conference on Neural Networks - Conference Proceedings v 1 1997. IEEE, Piscataway, NJ, USA,97CB36109. p 450-455
Publication Year: 1997
CODEN: ICNNF9
Language: English
Document Type: CA; (Conference Article) Treatment: T; (Theoretical)
Journal Announcement: 9710W4
Abstract: **Bayesian** belief networks are an important knowledge structure for reasoning under uncertainty. In the Most Probable Explanation (MPE) problem, also known as the maximum a-posteriori (MAP) assignment problem, the objective is to assign truth values to network variables in a way that will maximize their joint probability conditioned on the evidence to be explained. This problem has recently been shown to be NP-hard for general belief networks and for large networks, exact solution methods are not practical. In this paper, we present a **parallel processing** technique, particularly suitable for loosely-coupled multicomputers, which combines genetic algorithms with simulated annealing. This method is applied to the MPE problem on **Bayesian** belief network and is found to be superior on the MPE problem to either genetic algorithms or simulated annealing separately. (Author abstract) 12 Refs.
Descriptors: ***Neura** l **networks** ; Genetic algorithms; Simulated annealing; Parallel algorithms; Problem solving; Probability; Computational complexity; **Parallel processing** systems; Knowledge based systems
Identifiers: **Bayesian** belief networks; Most probable explanation (MPE) problem; Maximum a posteriori (MAP) assignment problem
Classification Codes:
723.5 (Computer Applications); 921.5 (Optimization Techniques); 922.1 (Probability Theory); 721.1 (Computer Theory, Includes Formal Logic, Automata Theory, Switching Theory, Programming Theory); 722.4 (Digital Computers & Systems)
723 (Computer Software); 921 (Applied Mathematics); 922 (Statistical Methods); 721 (Computer Circuits & Logic Elements); 722 (Computer Hardware)
72 (COMPUTERS & DATA PROCESSING); 92 (ENGINEERING MATHEMATICS)

18/5/9 (Item 9 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

04593877 E.I. No: EIP97013488172
Title: Local conditioning in Bayesian **networks**
Author: Diez, F.J.
Corporate Source: U.N.E.D., Madrid, Spain
Source: Artificial Intelligence v 87 n 1-2 Nov 1996. p 1-20
Publication Year: 1996
CODEN: AINTBB ISSN: 0004-3702
Language: English
Document Type: JA; (Journal Article) Treatment: A; (Applications); T; (Theoretical)
Journal Announcement: 9703W1
Abstract: Local conditioning (LC) is an exact algorithm for computing probability in **Bayesian** networks, developed as an extension of Kim and Pearl's algorithm for singly-connected networks. A list of variables associated to each node guarantees that only the nodes inside a loop are conditioned on the variable which breaks it. The main advantage of this algorithm is that it computes the probability directly on the original network instead of building a cluster tree, and this can save time when debugging a model and when the sparsity of evidence allows a pruning of the network. The algorithm is also advantageous when some families in the of the algorithm with a processor for each node is possible even in the case of multiply-connected networks. (Author abstract) 29 Refs.
Descriptors: *Algorithms; Graph theory; Probability; **Parallel processing** systems; **Artificial intelligence**
Identifiers: **Bayesian** networks; Local conditioning
Classification Codes:
921.4 (Combinatorial Mathematics, Includes Graph Theory, Set Theory); 922.1 (Probability Theory); 722.4 (Digital Computers & Systems); 723.4 (Artificial Intelligence)
921 (Applied Mathematics); 922 (Statistical Methods); 722 (Computer Hardware); 723 (Computer Software)
92 (ENGINEERING MATHEMATICS); 72 (COMPUTERS & DATA PROCESSING)

18/5/10 (Item 10 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

04544224 E.I. No: EIP96093332556
Title: Automatic detection and cueing for foliage-concealed targets
Author: MacDonald, D.; Chang, Chung-Fu; Roman, Juan; Koesel, Richard
Corporate Source: Loral Defense Systems, Litchfield Park Litchfiel, AZ, USA
Conference Title: Algorithms for Synthetic Aperture Radar Imagery III
Conference Location: Orlando, FL, USA Conference Date: 19960410-19960412
Sponsor: SPIE - Int Soc for Opt Engineering, Bellingham, WA USA
E.I. Conference No.: 22614
Source: Proceedings of SPIE - The International Society for Optical Engineering v 2757 1996.. p 152-162
Publication Year: 1996
CODEN: PSISDG ISBN: 0-8194-2138-3
Language: English
Document Type: CA; (Conference Article) Treatment: X; (Experimental); T ; (Theoretical)
Journal Announcement: 9612W5
Abstract: Automated target detection and cueing (ATD/C) capabilities are being developed at Loral for the Radar Detection of Concealed Time Critical Targets (RADCON) contract with Wright Laboratory (WL). The ATD/C algorithms use calibrated, fully polarimetric UHF band synthetic-aperture radar data collected by the ERIM/NAWC P-3 radar. A brief overview of data collected for RADCON algorithm development and testing is presented. An outline of the development and evaluation of discriminants used in the context of a **Bayesian Neural Network** (BNN) detector algorithm is described. The BNN algorithm was demonstrated under a previous WL concealed target detection ATD/C program. These algorithms will be hosted on a near real-time COTS **parallel processor** as part of a FOPEN airborne system. 6 Refs.
Descriptors: *Synthetic aperture radar; Radar imaging; Automation; Data processing; Algorithms; **Neural networks** ; Polarimetry; Statistical methods; Aircraft; Real time systems
Identifiers: Automatic target recognition; Foliage penetration
Classification Codes:
716.2 (Radar Systems & Equipment); 723.4 (Artificial Intelligence); 731.1 (Control Systems); 723.2 (Data Processing); 922.2 (Mathematical Statistics); 652.1 (Aircraft, General)
716 (Radar, Radio & TV Electronic Equipment); 723 (Computer Software); 731 (Automatic Control Principles); 922 (Statistical Methods); 652 (Aircraft)
71 (ELECTRONICS & COMMUNICATIONS); 72 (COMPUTERS & DATA PROCESSING); 73 (CONTROL ENGINEERING); 92 (ENGINEERING MATHEMATICS); 65 (AEROSPACE ENGINEERING)

18/5/12 (Item 12 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

04209018 E.I. No: EIP95072774670
Title: Using Bayesian **networks for incorporating probabilistic a priori knowledge into Boltzmann machines**
Author: Myllymaki, Petri
Corporate Source: Univ of Helsinki, Helsinki, Finl
Conference Title: Proceedings of the 1994 Southcon Conference
Conference Location: Orlando, FL, USA Conference Date: 19940329-19940331
Sponsor: IEEE; ERA
E.I. Conference No.: 43277
Source: Southcon Conference Record 1994. IEEE, Piscataway, NJ, USA,94RC5041. p 97-102
Publication Year: 1994
CODEN: SCOREX
Language: English
Document Type: CA; (Conference Article) Treatment: A; (Applications); T ; (Theoretical)
Journal Announcement: 9509W3
Abstract: We present a method for automatically determining the structure and the connection weights of a Boltzmann machine corresponding to a given **Bayesian** network representation of a probability distribution on a set of discrete variables. The resulting Boltzmann machine structure can be implemented efficiently on massively parallel hardware, since the structure can be divided into two separate clusters where all the nodes in one cluster can be updated **simultaneously** . The updating **process** of the Boltzmann machine approximates a Gibbs sampling process of the original **Bayesian** network in the sense that the Boltzmann machine converges to the same final state as the Gibbs sampler does. The mapping from a **Bayesian** network to a Boltzmann machine can be seen as a method for incorporating probabilistic a priori information into a **neural network** architecture, which can then be trained further with existing learning algorithms. (Author abstract) 21 Refs.
Descriptors: ***Neura** l **networks** ; Probability; Computer hardware; Approximation theory; Sampling; Conformal mapping; Learning algorithms; Markov processes; Vectors
Identifiers: **Bayesian** networks; Boltzmann machine; Gibbs sampling
Classification Codes:
723.4 (Artificial Intelligence); 922.1 (Probability Theory); 921.6 (Numerical Methods); 921.3 (Mathematical Transformations); 921.1 (Algebra)
723 (Computer Software); 922 (Statistical Methods); 722 (Computer Hardware); 921 (Applied Mathematics)
72 (COMPUTERS & DATA PROCESSING); 92 (ENGINEERING MATHEMATICS)

18/5/14 (Item 14 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

03854587 E.I. No: EIP94051281554
Title: Distributed inference in Bayesian **networks**
Author: Diez, F.J.; Mira, J.
Corporate Source: UNED, Madrid, Spain
Conference Title: Proceedings of the 1993 International Workshop on Computer Aided Systems Theory
Conference Location: Las Palmas, Spain Conference Date: 19930221-19930226
E.I. Conference No.: 20269
Source: Cybernetics and Systems v 25 n 1 Jan-Feb 1994. p 39-61
Publication Year: 1994
CODEN: CYSYDH ISSN: 0196-9722
Language: English
Document Type: JA; (Journal Article) Treatment: G; (General Review); T; (Theoretical)
Journal Announcement: 9406W3
Abstract: **Bayesian** networks originated as a framework for distributed reasoning. In singly connected networks, there exists an elegant inference algorithm that can be implemented in parallel having a processor for every node. It can be extended to take advantage of the OR-gate, a model of interaction among causes that simplifies knowledge acquisition and evidence propagation. We also discuss two exact and one approximate methods for dealing with general networks. It will be shown how all these algorithms admit distributed implementations. (Author abstract) 25 Refs.
Descriptors: *Inference engines; Algorithms; **Parallel processing** systems; **Artificial intelligence** ; Mathematical models; Data acquisition ; Approximation theory; Logic gates
Identifiers: Distributed inference; **Bayesian** networks; Knowledge acquisition; Evidence propagation
Classification Codes:
723.4.1 (Expert Systems)
723.4 (Artificial Intelligence); 723.1 (Computer Programming); 722.4 (Digital Computers & Systems); 723.2 (Data Processing); 721.2 (Logic Elements)
723 (Computer Software); 722 (Computer Hardware); 721 (Computer Circuits & Logic Elements)
72 (COMPUTERS & DATA PROCESSING)

18/5/17 (Item 17 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

02957072 E.I. Monthly No: EIM9009-036548
Title: Probabilistic neutral networks (a one-pass learning method) and potential applications.
Author: Specht, Donald F.
Corporate Source: Lockheed Missiles & Space Co, Inc, Palo Alto, CA, USA
Conference Title: Wescon '89?
Conference Location: San Francisco, CA, USA Conference Date: 19891114
Sponsor: IEEE, San Francisco Bay Area Council, San Francisco, CA, USA; IEEE, Los Angeles Council, Los Angeles, CA, USA; ERA, Northern California Chapter, CA, USA; ERA, Southern California Chapter, CA, USA
E.I. Conference No.: 13182
Source: Wescon Conference Record. Publ by Electronic Conventions Inc, El Segundo, CA, USA. p 780-785
Publication Year: 1989
CODEN: WCREDI
Language: English
Document Type: PA; (Conference Paper) Treatment: A; (Applications); T; (Theoretical); X; (Experimental)
Journal Announcement: 9009
Abstract: By replacing the Sigmoid activation function often used in **neural networks** with an exponential function, a probabilistic **neural network** (PNN) can be formed which computes nonlinear decision boundaries which are asymptotically **Bayes** -optimal. The PNN technique offers a tremendous speed advantage for problems in which the incremental adaptation time of back propagation is a significant fraction of the total computation time. For one application, the PNN paradigm was 200,000 times faster than back propagation. Many potential applications exist for **neural networks** of this type. Three recent investigations are discussed here: 1) Application of PNN to Hull to Emitter Correlation Problems (ELINT), 2) Application of PNN for Sonar submarine detection, and 3) Analysis of underlying causes of satellite communications failures. Excellent results were obtained for all three applications. (Author abstract) 9 Refs.
Descriptors: *SYSTEMS SCIENCE AND CYBERNETICS--* **Neural Nets** ; PROBABILITY; SUBMARINES; COMPUTER SYSTEMS, DIGITAL-- **Parallel Processing** ; TELECOMMUNICATION LINKS, SATELLITE--Failure; DECISION THEORY AND ANALYSIS
Identifiers: PROBABILISTIC **NEURAL NETWORKS** ; NONLINEAR DECISION BOUNDARIES; SUBMARINE DETECTION; EMITTER CORRELATION PROBLEMS; HULL ID PROBLEMS
Classification Codes:
731 (Automatic Control Principles); 922 (Statistical Methods); 672 (Naval Vessels); 722 (Computer Hardware); 723 (Computer Software); 716 (Radar, Radio & TV Electronic Equipment)
73 (CONTROL ENGINEERING); 92 (ENGINEERING MATHEMATICS); 67 (MARINE ENGINEERING); 72 (COMPUTERS & DATA PROCESSING); 71 (ELECTRONICS & COMMUNICATIONS)

18/5/18 (Item 18 from file: 8)
DIALOG(R)File 8:Ei Compendex(R)

02059514 E.I. Monthly No: EI8612125582 E.I. Yearly No: EI86085424
Title: ON OPTIMALLY COMBINING PIECES OF INFORMATION, WITH APPLICATION TO ESTIMATING 3-D COMPLEX-OBJECT POSITION FROM RANGE DATA.
Author: Bolle, Ruud M.; Cooper, David B.
Corporate Source: IBM, T. J. Watson Research Cent, Yorktown Heights, NY, USA
Source: IEEE Transactions on Pattern Analysis and Machine Intelligence v PAMI-8 n 5 Sep 1986 p 619-638
Publication Year: 1986
CODEN: ITPIDJ ISSN: 0162-8828
Language: ENGLISH
Document Type: JA; (Journal Article) Treatment: T; (Theoretical)
Journal Announcement: 8612
Abstract: Asymptotic methods are introduced that permit computationally simple **Bayesian** recognition and parameter estimation for many large data sets that are described by a combination of algebraic, geometric, and probabilistic models. The techniques permit controlled decomposition of a large problem into small problems for separate **parallel processing** , where maximum-likelihood estimation or **Bayesian** estimation or recognition can be realized locally. These results can be combined to arrive at globally optimum estimation or recognition. The approach is applied to the maximum-likelihood estimation of 3-D complex-object position. The object is modeled as a composite of primitive, simple, quadric 3-D surfaces, and parameters for these are estimated separately in parallel. Boundary information is also included in the model. The probabilistic framework is used to optimally integrate the information obtained from these separate estimations. 26 refs.
Descriptors: *PATTERN RECOGNITION SYSTEMS; PROBABILITY--Random Processes; **ARTIFICIAL INTELLIGENCE** ; ROBOTS, INDUSTRIAL--Vision Systems
Identifiers: PARAMETER ESTIMATION; MAXIMUM-LIKELIHOOD ESTIMATION
Classification Codes:
723 (Computer Software); 741 (Optics & Optical Devices); 922 (Statistical Methods)
72 (COMPUTERS & DATA PROCESSING); 74 (OPTICAL TECHNOLOGY); 92 (ENGINEERING MATHEMATICS)

01524991 ORDER NO: AAD97-03417

FINDING MOST PROBABLE EXPLANATIONS UNDER CONDITIONS OF UNCERTAINTY USING BAYESIAN BELIEF NETWORKS (ARTIFICIAL INTELLIGENCE)

Author: ABDELBAR, ASHRAF MOHAMED
Degree: PH.D.
Year: 1996
Corporate Source/Institution: CLEMSON UNIVERSITY (0050)
Adviser: SANDRA M. HEDETNIEMI
Source: VOLUME 57/08-B OF DISSERTATION ABSTRACTS INTERNATIONAL.
PAGE 5145. 147 PAGES
Descriptors: COMPUTER SCIENCE ; **ARTIFICIAL INTELLIGENCE**
Descriptor Codes: 0984; 0800

We investigate several issues with regard to the Most Probable Explanation (MPE) problem, which is also known as the maximum a posteriori (MAP) assignment problem.

The MPE problem has only been proven to be NP-hard in 1994 (92). That proof leaves open the possibility of finding a polynomial-time constant ratio-bounded algorithm for this problem. Unfortunately, we prove that such an algorithm cannot exist with any constant ratio bound unless P = NP. We also show that this holds for some polynomial ratio bounds. In addition, we investigate the complexity of randomized approximation. We prove that a polynomial-time algorithm which guarantees any fixed probability of finding the optimal solution cannot exist unless RP = NP.

We prove that the problem of finding a second-best solution given the optimal solution is NP-hard. Even approximating the second-best solution given the optimal solution is NP-hard. We also investigate dynamically changing evidence sets. We find that finding, or approximating, the most probable assignment for one evidence set given the optimal assignment for a related evidence set is NP-hard even if the two evidence sets are only marginally dissimilar.

Further, we investigate the relationship between the MPE problem and the Cost Based Abduction problem (CBA). In CBA, we are given a set of rules with associated numerical costs and a goal to be proved, and the objective is to find the lowest cost proof for the given goal. It has been suggested by Santos (84) that the MPE problem can be modelled by the CBA problem. We prove this relationship by presenting a general method for using any heuristic algorithm for cost based abduction to find high probability assignments for belief networks.

We develop a general method, called the UFO method, for hybridizing genetic algorithms and simulated annealing on a multiprocessor system. Our method is a variation of an algorithm called SAGA; however our method requires less synchronization between processors and is thus more suitable for loosely coupled processors. We implemented the UFO method on a network of SUN work-stations running PVM. We ran experiments with the number of

parallel processors varying from 1 to 17. We found that the speedup obtained was greater than the number of processors suggesting that our hybridization of genetic algorithms and simulated annealing is algorithmically superior to either of the two by itself.

Finally, we investigate the application of recurrent **neural networks** , which have been successfully applied to many optimization problems, to the MPE problem. The most popular **neural network** for optimization applications is the Hopfield network which is a recurrent network of quadratic order. The objective function being optimized in the MPE problem is generally of high order; the order is equal to the maximum in-degree in the network's underlying directed acyclic graph. We applied a cubic order generalization of the Hopfield network, called QNET, to the MPE problem for belief networks with a maximum in-degree of 2. Although unlike the Hopfield network, the stability and convergence of QNET are not

18/5/21 (Item 3 from file: 35)
DIALOG(R)File 35:Dissertation Abs Online

01247623 ORDER NO: AADMM-65232
PROBABILISTIC INFERENCE IN EXPERT SYSTEMS **: BACKGROUND, THEORY, AND ENHANCEMENTS**
Author: RANJBAR, AMIR SHAHRAM
Degree: M.SC.
Year: 1991
Corporate Source/Institution: UNIVERSITY OF GUELPH (CANADA) (0081)
Supervisor: M. D. MCLEISH
Source: VOLUME 30/04 of MASTERS ABSTRACTS.
PAGE 1351. 138 PAGES
Descriptors: MATHEMATICS
Descriptor Codes: 0405
ISBN: 0-315-65232-2

Bayesian belief networks are directed acyclic graphs with nodes representing propositional multivalued variables, and directed edges representing direct dependencies among the vertices they connect. In **Bayesian** networks, dependence is expressed by means of the D-separation criterion. While these networks are superb probabilistic knowledge representation tools, they cannot be directly used as inference tools in general. The current methodology for building an inference medium is to triangulate the directed acyclic graph and form a tree structure whose nodes represent the cliques of the triangulated graph. Clique-Trees, due to their special running intersection property do not need any independence assumptions or extra information for performing coherent belief propagation and inference.

Better performance of systems that undertake these structures and techniques relies heavily on the sparsity of the original network and a triangulation that takes as small a total state space as possible. Intelligent Arc Addition Algorithm (IAAA) introduces a triangulation technique that avoids addition of redundant chords during the process of triangulation. The Intelligent Belief Propagation (IBP) (also introduced in this document) is a technique that can be incorporated into probabilistic **expert systems** for faster response time. The algorithm for utilization of **parallel processors** provides an outline of how the independent subtasks within belief propagation can be performed in parallel and hence, further improve the system performance. (Abstract shortened by UMI.)

18/5/22 (Item 1 from file: 2)
DIALOG(R)File 2:INSPEC

6921277 INSPEC Abstract Number: C2001-06-1230D-036
Title: Boosting the differences: a fast Bayesian **classifier** neural network
Author(s): Philip, N.S.; Joseph, K.B.
Author Affiliation: Dept. of Phys., Cochin Univ. of Sci. & Technol., India
Journal: Intelligent Data Analysis vol.4, no.6 p.463-73
Publisher: IOS Press,
Publication Date: 2000 Country of Publication: Netherlands
ISSN: 1088-467X
SICI: 1088-467X(2000)4:6L.463:BDFB;1-G
Material Identity Number: G479-2001-005
U.S. Copyright Clearance Center Code: 1088-467X/2000/$8.00
Language: English Document Type: Journal Paper (JP)
Treatment: Theoretical (T)
Abstract: A new classifier based on **Bayes** ' principle that assumes the clustering of attribute values while boosting the attribute differences is presented. The method considers the error produced by each example in the training set in turn and updates the connection weights associated to the probability P(U/sub m/ C/sub k/) of each attribute of that example. In this process the probability density of identical attribute values flattens out and the differences get boosted up. Using four popular datasets from the UCI repository, some of the characteristic features of the network are illustrated. The network is found to have optimal generalization ability on all the datasets. For a given topology, the network converges to the same classification accuracy and the training time as compared to other networks is less. One of the examples indicates the possibility that the optimization of the network may be done in parallel (16 Refs)
Subfile: C
Descriptors: **Bayes** methods; belief networks; gradient methods; **neural nets**
Identifiers: **Bayesian** classifier **neural network** ; classification accuracy; **parallel processing** networks; naive **Bayesian** classifier; **neural networks** ; gradient descent algorithm
Class Codes: C1230D (Neural nets); C5220P (Parallel architecture)

18/5/25 (Item 4 from file: 2)
DIALOG(R)File 2:INSPEC

5518849 INSPEC Abstract Number: B9704-6130-064, C9704-1250C-016
Title: A Markov random field approach to Bayesian **speaker adaptation**
Author(s): Shahshahani, B.M.
Author Affiliation: Speech Bus. Unit, IBM Corp., Boca Raton, FL, USA
Journal: IEEE Transactions on Speech and Audio Processing vol.5, no.2 p.183-91
Publisher: IEEE,
Publication Date: March 1997 Country of Publication: USA
CODEN: IESPEJ ISSN: 1063-6676
SICI: 1063-6676(199703)5:2L.183:MRFA;1-R
Material Identity Number: P947-97002
U.S. Copyright Clearance Center Code: 1063-6676/97/$10.00
Document Number: S1063-6676(97)01896-8
Language: English Document Type: Journal Paper (JP)
Treatment: Theoretical (T); Experimental (X)
Abstract: Speaker adaptation through **Bayesian** learning methodology is studied in this paper. In order to utilize the cross allophone correlations, a Markov random field (MRF) model is proposed as the joint prior distribution of the mean vectors of the allophones. Neighborhoods are defined as pairs of parameters between which strong correlations have been observed previously. Maximum a posteriori estimates of the mean vectors are obtained through an iterative optimization technique that converges to the global maximum of the posterior distribution. This process is similar to a recursive prediction of the parameters, where at each iteration each parameter is estimated by a weighted sum of two terms, the first predicted by the neighbors and the second by the samples. Further **Bayesian** smoothing of the output distributions is carried out by utilizing some simplifications on the functional forms of the marginal posterior distributions. The proposed method is fast, consuming only a few **CPU** minutes for processing **hundreds** of sentences from a new speaker on an IBM RS6000 Model 580 system. Experimental results show rapid improvement of recognition accuracy. (16 Refs)
Subfile: B C
Descriptors: **Bayes** methods; convergence of numerical methods; correlation methods; iterative methods; learning (**artificial intelligence**); Markov processes; maximum likelihood estimation; optimisation; random processes; smoothing methods; speech recognition
Identifiers: Markov random field approach; **Bayesian** speaker adaptation; **Bayesian** learning; cross allophone correlations; joint prior distribution ; neighborhoods; maximum a posteriori estimates; iterative optimization technique; global maximum; posterior distribution; recursive prediction; weighted sum; **Bayesian** smoothing; output distributions; functional forms; IBM RS6000 Model 580 system
Class Codes: B6130 (Speech analysis and processing techniques); B0260 (Optimisation techniques); B0290F (Interpolation and function approximation) ; B0240Z (Other topics in statistics); C1250C (Speech recognition); C1180 (Optimisation techniques); C1230 (Artificial intelligence); C4130 (Interpolation and function approximation); C5260S (Speech processing techniques); C1140Z (Other topics in statistics)

18/5/26 (Item 5 from file: 2)
DIALOG(R)File 2:INSPEC

4886480 INSPEC Abstract Number: C9504-7250R-012
Title: A heuristic information retrieval model on a massively parallel processor
Author(s): Inien Syu; Lang, S.D.; Hua, K.A.
Author Affiliation: Dept. of Comput. Sci., Central Florida Univ., Orlando, FL, USA
p.365-72
Editor(s): Yu, P.S.; Chen, A.L.P.
Publisher: IEEE Comput. Soc. Press, Los Alamitos, CA, USA
Publication Date: 1995 Country of Publication: USA xvi+559 pp.
ISBN: 0 8186 6910 1
U.S. Copyright Clearance Center Code: 1063-6382/95/$4.00
Conference Title: Proceedings of the Eleventh International Conference on Data Engineering
Conference Sponsor: IEEE Comput. Soc. Tech. Committee on Data Eng.; Nat. Tsing Hua Univ.; Providence Univ., Taiwan
Conference Date: 6-10 March 1995 Conference Location: Taipei, Taiwan
Language: English Document Type: Conference Paper (PA)
Treatment: Practical (P)
Abstract: We adapt a competition-based connectionist model to information retrieval. This model, which has been proposed for diagnostic problem solving, treats documents as "disorders" and user information needs as "manifestations", and it uses a competitive activation mechanism which converges to a set of disorders that best explain the given manifestations. Our experimental results using four standard document collections demonstrate the efficiency and the retrieval precision of this model, comparable to or better than that of various information retrieval models reported in the literature. We also propose a parallel implementation of the model on a SIMD machine, MasPar's MP-I. Our experimental results demonstrate the potential to achieve significant speedups. (22 Refs)
Subfile: C
Descriptors: **Bayes** methods; diagnostic reasoning; inference mechanisms; information needs; information retrieval; **neural nets** ; **parallel processing** ; problem solving
Identifiers: heuristic information retrieval model; massively **parallel processor** ; competition-based connectionist model; diagnostic problem solving; documents; user information needs; manifestations; competitive activation mechanism; disorders; standard document collections; efficiency; retrieval precision; parallel implementation; MasPar MP-I SIMD machine; speedups
Class Codes: C7250R (Information retrieval techniques); C7220 (Generation, dissemination, and use of information); C5290 (Neural computing techniques); C1140 (Probability and statistics)

18/5/31 (Item 10 from file: 2)
DIALOG(R)File 2:INSPEC

03131066 INSPEC Abstract Number: B88033823, C88029377
Title: Real-time probabilistic optical expert system
Author(s): McAulay, A.D.
Author Affiliation: Dept. of Comput. Sci., Wright State Univ., Dayton, OH, USA
Journal: Proceedings of the SPIE - The International Society for Optical Engineering vol.752 p.72-7
Publication Date: 1987 Country of Publication: USA
CODEN: PSISDG ISSN: 0277-786X
Conference Title: Digital Optical Computing
Conference Sponsor: SPIE
Conference Date: 13-14 Jan. 1987 Conference Location: Los Angeles, CA, USA
Language: English Document Type: Conference Paper (PA); Journal Paper (JP)
Treatment: Practical (P)
Abstract: Optics has advantages for overcoming limitations arising when applying existing electronic technologies to real-time parallel computation. In particular, spatial light modulators (SLMs) permit simultaneous storage, multiplication, and/or complex interconnection. A simple diagnostic **expert system** uses **Bayes** theorem to recursively update the probabilities of various hypotheses given additional sensor input information. The 'a priori' probability matrices are stored in SLMs which provide matrix-vector multiplication and interconnection. High speed permits the optimum determination of which sensor should be polled next. (14 Refs)
Subfile: B C
Descriptors: **Bayes** methods; **expert systems** ; optical information processing; optical modulation; **parallel processing**
Identifiers: real-time probabilistic optical **expert system** ; real-time parallel computation; spatial light modulators; diagnostic **expert system** ; **Bayes** theorem; matrix-vector multiplication; interconnection
Class Codes: B4180 (Optical logic devices and optical computing techniques); C1230 (Artificial intelligence); C5270 (Optical computing techniques); C6170 (Expert systems)

18/5/32 (Item 11 from file: 2)
DIALOG(R)File 2:INSPEC

02644085 INSPEC Abstract Number: C86021568
Title: Bayesian **networks: a model of self-activated memory for evidential reasoning**
Author(s): Pearl, J.
Issued by: Univ. California, Comput. Sci. Dept., Los Angeles, CA, USA
Publication Date: 1985 Country of Publication: USA 20 pp.
Report Number: CSD-850017
Language: English Document Type: Report (RP)
Treatment: Theoretical (T)
Abstract: A **Bayesian** network can be used to represent the deep causal knowledge of an agent of a domain expert and turns into a computational architecture if the links are used not merely for storing factual knowledge but also for directing and activating the data flow in the computations which manipulate this knowledge. The first part of the paper defines the properties of **Bayes** networks which are necessary to guarantee completeness and consistency, and shows how dependencies and conditional-independence relationships can be tested using simple link-tracing operations. The second part of the paper deals with the task of fusing and propagating the impacts of new evidence and beliefs through **Bayesian** networks in such a way that, when equilibrium is reached, each proposition will be assigned a belief measure consistent with the observed data. It is first argued that any viable model of human reasoning should be able to perform this task by a self-activated propagation mechanism, i.e. by an array of simple and autonomous processors, communicating locally via the links provided by the **Bayes** network itself. The author then quotes results which show that these objectives can be fully realised only in singly-connected networks, where there exists only one (undirected) path between any pair of nodes. Finally, the paper discusses several approaches to achieving belief propagation n more general networks, and argues for the feasibility of turning a **Bayes** network into a tree by introducing dummy variables, mimicking the way in which people develop causal models.
Subfile: C
Descriptors: **artificial intelligence** ; **Bayes** methods; brain models; directed graphs
Identifiers: testing; **parallel processing** ; new beliefs; human reasoning model; undirected path; DAGs; **Bayesian** network; deep causal knowledge; domain expert; computational architecture; data flow; **Bayes** networks; completeness; consistency; dependencies; conditional-independence relationships; link-tracing operations; new evidence; self-activated propagation mechanism; singly-connected networks; belief propagation; dummy variables; causal models
Class Codes: C1140Z (Other and miscellaneous); C1160 (Combinatorial mathematics); C1230 (Artificial intelligence); C4290 (Other computer theory)

18/5/34 (Item 1 from file: 94)
DIALOG(R)File 94:JICST-EPlus

01776478 JICST ACCESSION NUMBER: 93A0629257 FILE SEGMENT: JICST-E
Mechanisms of Information Integration in the Middle Vision.
INUI TOSHIRO (1); YAMASHITA HIROSHI (1)
(1) Kyoto Univ., Faculty of Letters
Denshi Joho Tsushin Gakkai Gijutsu Kenkyu Hokoku(IEIC Technical Report (Institute of Electronics, Information and Communication Enginners), 1993, VOL.93,NO.124(NC93 12-23), PAGE.9-16, FIG.13, REF.13
JOURNAL NUMBER: S0532BBG
UNIVERSAL DECIMAL CLASSIFICATION: 612.8:007 612.84:007
LANGUAGE: Japanese COUNTRY OF PUBLICATION: Japan
DOCUMENT TYPE: Journal
ARTICLE TYPE: Original paper
MEDIA TYPE: Printed Publication
ABSTRACT: There are many vision modules in early vision which estimate the 3 dimensional structure from 2 dimensional image. According to Marr(1982), these outputs are integrated into a surface representation based on the viewer-centered coordinates in the middle vision. First, we examined several types of interaction which were found through several psychological experiments. Then, we proposed a new theory of the integration between vision modules which is based on the **Bayesian** estimation and simple **neural network** . Furthermore, we pointed out the similarity with Binocular summation and inhibition. Finally, we discussed the computation of information integration in the middle vision in the general framework of vision modules proposed by Inui and Kawato(1992). (author abst.)
DESCRIPTORS: evaluation function; **Bayes** estimation; **neural network** model; visual sense; module; **parallel processing** ; psychological test; integration(unification); visual cortex
BROADER DESCRIPTORS: function(mathematics); mapping(mathematics); statistical estimation; estimation; statistical decision; decision; statistical method; biomodel; model; sense; treatment; psychometry; psychiatric care; sensory area(sense); cerebral cortex; telencephalon; prosencephalon; brain; central nervous system; nervous system; cortex(animal tissue)
CLASSIFICATION CODE(S): EL02050C; EL02060N

18/5/38 (Item 3 from file: 6)
DIALOG(R)File 6:NTIS

1388582 NTIS Accession Number: AD-A196 109/3
Resource Allocations and Expert Systems
(Final rept)
JAYCOR, Alexandria, VA.
Corp. Source Codes: 064012000; 393453
12 May 88 36p
Languages: English
Journal Announcement: GRAI8822
Order this product from NTIS by: phone at 1-800-553-NTIS (U.S. customers); (703)605-6000 (other countries); fax at (703)321-8547; and email at orders@ntis.fedworld.gov. NTIS is located at 5285 Port Royal Road, Springfield, VA, 22161, USA.
NTIS Prices: PC A03/MF A01
Country of Publication: United States
Contract No.: N00014-85-C-2044
The work performed to meet the requirement of this task is a continuing effort, evolving toward a general purpose reasoning tool. The idea here is to build a more powerful general **expert system** than the previous one. Towards that, this new **Bayesian** inference engine is based on the work done by Pearl and Kim. The advantages of this new inference engine over the previous one are that the representation of the knowledge is more compact and the inferencing is suitable for **parallel processing** . The inference engine is written in Franz lisp on VAX machine. All the code and a typescript of how to load and use the system is attached. Keywords: Computer programming. (KR)
Descriptors: *Allocations; **Bayes** theorem; Computer programming; **Parallel processing** ; Reasoning; Resource management; Tools
Identifiers: ***Exper** t **systems** ; Inferences; NTISDODXA
Section Headings: 62B (Computers, Control, and Information Theory--Computer Software)

18/5/39 (Item 1 from file: 144)
DIALOG(R)File 144:Pascal

15744648 PASCAL No.: 02-0456338

Special Issue on Applications of Nonlinear Dynamics to Electronic and Information Engineering

HASLER Martin, ed; MAZZINI Gianluca, ed; OGORZALEK Maciej, ed; ROVATTI Riccardo, ed; SETTI Gianluca, ed

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Journal: Proceedings of the IEEE, 2002, 90 (5) 301 p.
ISSN: 0018-9219 CODEN: IEEPAD Availability: INIST-222; 354000108806400000
No. of Refs.: dissem.
Document Type: P (Serial) ; M (Monographic)
Country of Publication: United States
Language: English

English Descriptors: Digital communication; Information transmission; Code division multiple access; Spread spectrum; Synchronization; Chaos; Markov chain; Statistical model; AWGN channels; Multipath channels; Coding; Decoding; Modulation; Demodulation; Optimal detection; **Bayes** detection; Information theory; Circuit design; Analogue integrated circuits; Non linear circuit; Methodology; Mathematical model; Optimization; Power electronics; Power converter; Switching circuit; Bifurcation; Non linear phenomenon; Telecommunication network; Teletraffic; Dynamical system; Selfsimilarity; Internet; Traffic control; Traffic congestion; Feedback regulation; Radar; Clutter; Autoregressive model; Active antenna; Coupled oscillator; Beam forming; Beam steering; **Neural network** ; **Parallel processing** ; Distributed processing

French Descriptors: Communication numerique; Transmission information; Acces multiple code; Spectre etale; Synchronisation; Chaos; Chaine Markov ; Modele statistique; Canal bruit blanc gaussien additif; Canal trajet multiple; Codage; Decodage; Modulation; Demodulation; Detection optimale; Detection **Bayes** ; Theorie information; Conception circuit; Circuit integre analogique; Circuit non lineaire; Methodologie; Modele mathematique; Optimisation; Electronique puissance; Convertisseur puissance; Circuit commutation; Bifurcation; Phenomene non lineaire; Reseau telecommunication; Teletrafic; Systeme dynamique; Autosimilitude; Internet; Regulation trafic; Congestion trafic; Retroaction; Radar; Fouillis echo; Modele autoregressif; Antenne active; Oscillateur couple; Formation voie; Commande orientation faisceau; Reseau neuronal; Traitement parallele; Traitement reparti

Classification Codes: 001D04B02G; 001B00E45A; 001D04B02B; 001D05H

18/5/40 (Item 2 from file: 144)
DIALOG(R)File 144:Pascal

15737932 PASCAL No.: 02-0449459
Efficient global optimization for hydraulic fracturing treatment design
QUEIPO Nestor V; VERDE Alexander J; CANELON Jose; PINTOS Salvador
Applied Computing Institute, Faculty of Engineering, University of Zulia, Venezuela; Electrical Engineering School, Faculty of Engineering University of Zulia, Venezuela
Journal: Journal of petroleum science & engineering, 2002, 35 (3-4) 151-166
ISSN: 0920-4105 CODEN: JPSEE6 Availability: INIST-21158; 354000104514830020
No. of Refs.: 17 ref.
Document Type: P (Serial) ; A (Analytic)
Country of Publication: Netherlands
Language: English
This paper presents a methodology for the optimal hydraulic fracture treatment design. The methodology includes the construction of a "fast surrogate" of an objective function whose evaluation involves the execution of a time-consuming computational model, based on **neural networks** , DACE modeling, and adaptive sampling. Using adaptive sampling, promising areas are searched considering the information provided by the surrogate model and the expected value of the errors. The proposed methodology provides a global optimization method, hence avoiding the potential problem of convergence to a local minimum in the objective function exhibited by the commonly Gauss-Newton methods. Furthermore, it exhibits an affordable computational cost, is amenable to **parallel processing** , and is expected to outperform other general purpose global optimization methods such as simulated annealing and genetic algorithms. The methodology is evaluated using two case studies corresponding to formations differing in rock and fluid properties, and geometry parameters. From the results, it is concluded that the methodology can be used effectively and efficiently for the optimal design of hydraulic fracture treatments.

English Descriptors: Oil well; Gas well; Well stimulation; Hydraulic fracturing; Optimization; **Bayes** methods; Modeling

French Descriptors: Puits petrole; Puits gaz; Stimulation puits; Fracturation hydraulique; Optimisation; Methode **Bayes** ; Modelisation

Classification Codes: 001D06B02B5G; 230

18/5/44 (Item 4 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

04079569 Genuine Article#: RC669 Number of References: 10
Title: SYSTEM-IDENTIFICATION USING PARTITIONED LEAST-SQUARES
Author(s): KARNY M; WARWICK K
Corporate Source: ACAD SCI CZECH REPUBL,INST INFORMAT THEORY & AUTOMAT,DEPT ADAPT SYST,POD VODARENSKOU VEZI 4/CR-18208 PRAGUE 8//CZECH REPUBLIC/; UNIV READING,SCH ENGN & INFORMAT SCI,DEPT CYBERNET/READING RG6 2AY/BERKS/ENGLAND/
Journal: IEE PROCEEDINGS-CONTROL THEORY AND APPLICATIONS, 1995, V142, N3 (MAY), P223-228
ISSN: 1350-2379
Language: ENGLISH Document Type: ARTICLE
Geographic Location: CZECH REPUBLIC; ENGLAND
Subfile: SciSearch; CC ENGI--Current Contents, Engineering, Technology & Applied Sciences
Journal Subject Category: INSTRUMENTS & INSTRUMENTATION; ENGINEERING, ELECTRICAL & ELECTRONIC
Abstract: A novel partitioned least squares (PLS) algorithm is presented, in which estimates from several simple system models are combined by means of a **Bayesian** methodology of pooling partial knowledge. The method has the added advantage that, when the simple models are of a similar structure, it lends itself directly to **parallel processing** procedures, thereby speeding up the entire parameter estimation process by several factors.
Descriptors--Author Keywords: RECURSIVE LEAST SQUARES ; APPROXIMATION ; ARX MODEL ; ESTIMATION
Research Fronts: 93-3175 001 (PROJECTION PURSUIT REGRESSION; MULTIVARIATE SPLINE TRANSFORMATIONS; **NEURAL NETWORKS** ; FUNCTION APPROXIMATION; ROBUST PRINCIPAL COMPONENT ANALYSIS)
93-7349 001 (SUBSPACE MODEL IDENTIFICATION; SEISMIC RESPONSES OF 2 ADJACENT BUILDINGS; SPEECH SIGNALS; MULTIPLE INTEGRALS; APPROXIMATION ERRORS)
Cited References:
DEXTER AL, 1983, V130, P255, IEE PROC-D
FARSI M, 1984, V20, P913, ELECTRON LETT
FRIEDMAN JH, 1991, V19, P1, ANN STAT
HARRIS CJ, 1985, SELF TUNING ADAPTIVE
KARNY M, 1993, MUTUAL IMPACT COMPUT
KARNY M, 1994, P IFAC S IDENTIFICAT
KULHAVY R, 1987, V23, P598, AUTOMATICA
PETERKA V, 1981, P239, TRENDS PROGR SYSTEM
SODERSTROM T, 1989, SYSTEM IDENTIFICATIO
WARWICK K, 1991, ADV METHODS ADAPTIVE

18/5/45 (Item 5 from file: 34)
DIALOG(R)File 34:SciSearch(R) Cited Ref Sci

03542723 Genuine Article#: PL920 Number of References: 14
Title: NEURAL - NETWORK **MODEL FOR GENERATING SUBJECTIVE CONTOURS**
Author(s): ISHIDERA E; TSUCHIYA M; TAKAHASHI S; KURITA S; ARAI H; MIYAUTI H
Corporate Source: KEIO UNIV,FAC SCI & TECHNOL/YOKOHAMA/KANAGAWA 223/JAPAN/
Journal: SYSTEMS AND COMPUTERS IN JAPAN, 1994, V25, N5 (MAY), P28-37
ISSN: 0882-1666
Language: ENGLISH Document Type: ARTICLE
Geographic Location: JAPAN
Subfile: SciSearch
Journal Subject Category: COMPUTER SCIENCE, HARDWARE & ARCHITECTURE; COMPUTER SCIENCE, INFORMATION SYSTEMS; COMPUTER SCIENCE, THEORY & METHODS
Abstract: The human visual system has the ability to recognize a virtual line even for a discrete object such as a dot pattern. Even if there is no difference in color or brightness, a clear subjective contour can still be perceived. This phenomenon can be formulated as an interpolation problem.

This paper proposes a hierarchical visual information-processing model based on physiological data. The model then is applied to the problem of interpolation, e.g., the perception of a virtual line and a subjective contour. To form the subjective contour, the actual outline of the visual object, the points comprising the subjective contour and the points that move to form a subjective contour must be determined. This is achieved by **parallel processing** in the proposed model which is composed of complex cells and hyper-complex cells.

The complex cells receive the outputs of two kinds of simple cells (S and L), and executes contour detection and interpolation of a dot pattern by global processing. The hypercomplex cell detects the end point and the point of large curvature through which the subjective contour is supposed to pass. All these processes are executed by **parallel processing** .

When the results of processing are ready, the points comprising the subjective contour are determined by weighting. The model in this study is constructed to detect the subjective contour as well as the actual edge by assembling the information from these hierarchical processing.
Descriptors--Author Keywords: SUBJECTIVE CONTOUR ; VIRTUAL LINE ; VISUAL CORTEX ; **NEURAL NETWORK** MODEL ; DOG FILTER
Identifiers--KeyWords Plus: MONKEY VISUAL-CORTEX; PERCEPTION; MECHANISMS
Research Fronts: 92-5044 002 (SPATIAL ATTENTION; VISUAL-SEARCH TASKS; PARTIAL INFORMATION; PERCEPTUAL GROUPING)
92-2477 001 (HIERARCHICAL **BAYES** MODELS; GIBBS SAMPLING; MARKOV RANDOM-FIELDS)
Cited References:
DOBBINS A, 1987, V329, P438, NATURE
GEMAN S, 1984, V6, P721, IEEE T PATTERN ANAL
IKUTA G, 1990, IEICE NC90132 TECHN
INUI T, 1990, IEICE NC9021 TECHN G
KANIZSA G, 1976, P48, SCI AM APR
KAWAHITO M, 1990, V73, P1111, T IEICE JAPAN D II
KOYAMA T, 1989, IEICE MBE89104 TECHN
LIVINGSTONE MS, 1987, V7, P3416, J NEUROSCI
MARR D, 1982, VISION COMPUTATIONAL
PETERHANS E, 1989, V9, P1749, J NEUROSCI
SAITO H, 1987, V45, P1936, JAP J CLIN
VONDERHEYDT R, 1989, V9, P1731, J NEUROSCI
VONDERHEYDT R, 1984, V224, P1260, SCIENCE
YASUDA H, 1990, V73, P906, T IEICE JAPAN D II

18/5/49 (Item 1 from file: 62)
DIALOG(R)File 62:SPIN(R)

00328761
Real-time optical expert systems
McAulay, Alastair D.
Wright State University, Department of Computer Science, Dayton, Ohio 45435
Appl. Opt.; 26(10),1927-1934 (15 MAY 1987) CODEN: APOPA
CPM: 8706-B-0113
Work Type: THEORETICAL
Optics has advantages for overcoming limitations arising when applying existing electronic technologies to real-time parallel computation. In particular, spatial light modulators (SLMS) permit simultaneous storage, multiplication, and/or complex interconnection. A simple expert uses an SLM crossbar switch to provide a flexible and fast implementation of combinatorial logic. A second **expert system** , illustrated using medical diagnostics, uses the **Bayes** theorem to updata recursively the probabilities of various illnesses given additional symptom information. The a priori probability matrices are stored in SLMs which provide matrix-vector multiplication and interconnection. Computation of the best next symptom question is possible because of the high speed.
PACS: *42.80.V, 89.80, 42.65.P, 42.80.K
Descriptors: OPTICAL SYSTEMS; REAL TIME SYSTEMS; **EXPERT SYSTEMS** ; OPTICAL COMPUTERS ; **PARALLEL PROCESSING** ; OPTICAL MODULATORS ; OPTICAL STORAGE; DATA PROCESSING; IMPLEMENTATION; PROBABILITY; DESIGN; COMPUTER ARCHITECTURE;

18/5/51 (Item 2 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management

00834680 E94114569022
Massively parallel case-based reasoning with probabilistic similarity metrics
(Massiv paralleles fall-basiertes Schliessen)
Myllymaeki, P; Tirri, H
Univ. of Helsinki, SF
EWCBR 93, 1st Europ. Workshop on Case-Based Reasoning, Vol. 1: Posters and Presentations, Kaiserslautern, D, Nov 1-5, 19931993
Document type: Conference paper Language: English
Record type: Abstract

ABSTRACT:
The paper propose a probabilistic case-space metric for the case matching and case adaptation tasks. Central to the approach is a probability propagation algorithm adopted from **Bayesian** reasoning systems, which allows the case-based reasoning system to perform theoretically sound probabilistic reasoning. The same probability propagation mechanism actually offers an uniform solution to both the case matching and case adaptation problems. The paper aso shows how the algorithm can be implemented as a connectionist network, where efficient massively parallel case retrieval is an inherent property of the system. The authors argue that using this kind of an approach, the difficult problem of case indexing can be completely avoided.

DESCRIPTORS: ALGORITHM; **ARTIFICIAL INTELLIGENCE** ; IMPLEMENTATION; NETWORKS--CIRCUITS; **PARALLEL PROCESSING** ; NETWORK ARCHITECTURE; LEARNING -- **ARTIFICIAL INTELLIGENCE** ; MEASUREMENT SYSTEMS; LIKENESS; LEARNING SYSTEMS
IDENTIFIERS: fall-basiertes Schliessen; maschinelles Lernen

18/5/52 (Item 3 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management

00774839 E94054346007
Massively parallel models of computation. Distributed parallel processing **in** artificial intelligence **and optimisation**
(Massiv parallele Rechenmodelle. Verteilte Parallelverarbeitung in kuenstlicher Intelligenz und Optimierung)
Barbosa, VC
Federal Univ. of Rio de Janeiro, Brazil
1993
Document type: Monograph Language: English
Record type: Abstract
ISBN: 0-13-562968-3

ABSTRACT:
This is a book about the parallel simulation by distributed-memory machines of massively parallel models of computation within **artificial intelligence** and optimization. The models treated include cellular automata, Hopfield **neural networks** (both analog and binary), Markov random fields, Boltzmann machines, **Bayesian** networks, and other analog **neural networks** specialized in the solution of some mathematical problems. The author have intended the book to have a multidisciplinary character, so it contains, in addition to the simulation-related material and at different levels of detail, a treatment of basic principles of distributed parallel program design, of each model's main properties and applications, and of how the models relate to one another. This book comprises ten chapters and four appendices, grouped into five major parts. Every chapter and appendix is complemented by a section with bibliographic notes, where comments and directions regarding the bibliography section at the end of the book are provided.

DESCRIPTORS: **PARALLEL PROCESSING** ; **ARTIFICIAL INTELLIGENCE** ; DISTRIBUTED DATABASES; DATA MEMORY; DISTRIBUTED PARAMETER SYSTEMS; NERVE NET; MODEL STUDY; MODEL SIMULATION
IDENTIFIERS: Parallelverarbeitung; kuenstliche Intelligenz

18/5/54 (Item 5 from file: 95)

00584154 I92010651937
Real-time neural networks **: conjunctoid parallel implementation**
(Neuronale Netze im Echtzeitbetrieb: parallele Implementierung der Uebereinstimmung)
Mehta, P; Jannarone, R
Dept. of Electr. & Comput. Eng., South Carolina Univ., Columbia, SC, USA
Proceedings. The Twenty-Third Southeastern Symposium on System Theory, 10-12 March 1991, Columbia, SC, USA1991
Document type: Conference paper Language: English
Record type: Abstract
ISBN: 0-8186-2190-7

ABSTRACT:
Conjunctoids are model-based **neural networks** for categorical data, having features that include: generality, with special cases ranging from simple perceptron-like linear versions to full-blown versions that account for all possible associations among external variables; continuous learning and performance, with provisions for optimal updating as each new datum is received, based on **Bayes** decision theory; and separable learning as well as performance formulas, with provisions for breaking down necessary global computations into parallel components. In the paper, a simple PC implementation is described for a full-blown conjunctoid model on a small-scale setting. A design and implementation of the model on an NCUBE parallel platform and on a special purpose parallel platform are also described.

DESCRIPTORS: REAL TIME METHOD; FEATURE RECOGNITION; **PARALLEL PROCESSING** ; **BAYES** METHOD; DECISION THEORY; LEARNING SYSTEMS; PARALLEL ARCHITECTURES
IDENTIFIERS: CONJUNCTOID PARALLEL IMPLEMENTATION; MODEL BASED **NEURAL NETWORKS** ; PERCEPTRON LIKE LINEAR VERSIONS; CONTINUOUS LEARNING; OPTIMAL UPDATING; **BAYES** DECISION THEORY; SEPARABLE LEARNING; PC IMPLEMENTATION; NCUBE PARALLEL PLATFORM; SPECIAL PURPOSE PARALLEL PLATFORM; neuronales Netz ; Echtzeitbetrieb; Implementierung

18/5/55 (Item 6 from file: 95)
DIALOG(R)File 95:TEME-Technology & Management

00512751 E91114470080
Decrementing hamming and Bayesian neural networks : **Analog implementations and relative performance**
(Reduzierung von Hamming- und **Bayes** - neuronalen Netzen, analoge Implementierungen und relative Leistung)
Dobson, VG; Salinas, JM
Dep. of Experimental Psychology, Oxford, GB; Univ. to Granada, E
Artificial Neural Networks, International Workshop IWANN '91, Granada, E, September 17-19, 19911991
Document type: Conference paper Language: English
Record type: Abstract
ISBN: 3-540-54537-9; 0-387-54537-9

ABSTRACT:
A review of recent patent applications indicates that **neural networks** using Hamming-type algorithms with minimum-mismatch selection provide an optimal combination of implementational simplicity, information storage capacity and signal-noise characteristics. These networks can be adapted to implement **Bayes** ' rule, by setting link gains to the negative logarithm of conditional or a priori probabilities. Where probability distributions and noise are not uniform or random, the performance of **Bayesian** classifiers may be significantly better than that of the corresponding Hamming network on the same vector set. We demonstrate this for the noisy digit classification task. We also generate biologically plausible curvature detectors for character recognition and compare the performances of **Bayesian** and Hamming networks at classifying the resultant vectors. Preliminary results suggest that Hamming networks may provide good approximations to the **Bayes** optimum for sparse natural vector sets under some conditions.

DESCRIPTORS: NERVE NET; **BAYES** METHOD; ALGORITHM; S N RATIO; DATA STORAGE; CLASSIFICATION; ANALOGUE CIRCUITS; **PARALLEL PROCESSING** ; COMPUTER ARCHITECTURE; NETWORK TOPOLOGY; DISTRIBUTION FUNCTION; PROBABILITY DISTRIBUTION
IDENTIFIERS: HAMMING KLASSIFIKATION; neuronales Netz; Hamming- **Bayes** -Klassifikation

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Set     Items   Description
S1      80207   PARALLEL()(PROCESS OR PROCESSES OR PROCESSING) OR (PROCESS
             OR PROCESSES OR PROCESSING) (3N)(SAME()TIME OR SIMULTANEOUS? -
             OR SYNCHRONOUS OR SYNCHRONI?E? ? OR SYNCHRONI?ING  OR SYMMETR-
             IC? OR SYMMETRY)
S2     104310   (PLURAL? OR MORE()THAN()ONE OR MANY OR SEVERAL OR MULTIPLE?
              ? OR MULTIPLICITY OR VARIOUS OR NUMEROUS OR MYRIAD OR SECOND?
              OR 2ND OR PRIMARY OR THOUSAND? ? OR MILLION? ? OR HUNDRED? ?-
             )(3N)(CPU? ? OR PROCESSOR? ? OR PROCESSING()UNIT? ? OR MICROP-
             ROCESSOR? ?)
S3     303540   (NEURAL()(NET? ? OR NETWORK? OR SYSTEM? ?)) OR ((MACHINE? ?
              OR AUTOMATIC? OR AUTOMATE? ? OR AUTOMATING OR AUTOMATION OR -
             COMPUTER? ?)()(LEARN? OR TRAIN? OR DECISION()MAKING OR INTELL-
             IGENCE)) OR NEUROCOMPUT? OR EXPERT()SYSTEM? ? OR ARTIFICIAL()-
             INTELLIGENCE
S4      18672   BROWNIAN
S5      36344   BAYES OR BAYESIAN
S6     129225   (CONVERT?R? ? OR CONVERT? ? OR CONVERTED OR CONVERTING OR -
             CHANGE? ? OR CHANGING OR TRANSLATE? ? OR TRANSLATOR OR TRANSL-
             ATING OR TRANSLATION? ? OR TRANSFER? ? OR TRANFERED OR TRANFE-
             RING OR TRANSFORM?? OR TRANFORMING OR TRANFORMATION)(3N) (LAN-
             GUAGE? ? OR CO
S7      15931   FUZZY()LOGIC
S8        225   S4 AND S5
S9          1   S8 (S) (S1 OR S2)
S10         2   S8 (S) S3
S11     54791   S4 OR S5
S12        45   S11 (10N) (S1 OR S2)
S13         0   S12 (10N) S3
S14        43   S12 NOT PY>2002
S15        41   RD (unique items)
S16      2151   S11 (10N) S3
S17       157   S16 (10N) (S6 OR S7)
S18         2   S16 (10N) S6 (10N) S7
S19       117   S17 NOT PY>2002
S20         2   S16 (S) S6 (S) S7
S21   4528791   MATRIX OR MATRICES OR ARRAY? ? OR VECTOR? ? OR SUBVECTOR? ?
             OR TABLE? ?
S22       880   S16 (10N) S21
S23        87   S22 (10N) (S6 OR S7)
S24        69   S23 NOT PY>2002
S25        49   RD (unique items)
File  88:Gale Group Business A.R.T.S. 1976-2005/Jul 19
         (c) 2005 The Gale Group
File 369:New Scientist 1994-2005/May W3
         (c) 2005 Reed Business Information Ltd.
File 160:Gale Group PROMT(R) 1972-1989
         (c) 1999 The Gale Group
File 635:Business Dateline(R) 1985-2005/Jul 20
         (c) 2005 ProQuest Info&Learning
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         (c) 2005 ProQuest Info&Learning
File  16:Gale Group PROMT(R) 1990-2005/Jul 19
         (c) 2005 The Gale Group
File   9:Business & Industry(R) Jul/1994-2005/Jul 19
         (c) 2005  The Gale Group
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         (c) 2005  The Gale Group
File 810:Business Wire 1986-1999/Feb 28
         (c) 1999 Business Wire
File 610:Business Wire 1999-2005/Jul 19
         (c) 2005 Business Wire.
File 647:CMP  Computer Fulltext 1988-2005/Jul W1
         (c) 2005 CMP Media, LLC
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File 98:General Sci Abs/Full-Text 1984-2004/Dec
(c) 2005 The HW Wilson Co.
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(c)2005 The Gale Group
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(c) 2005 San Jose Mercury News
File 275:Gale Group Computer DB(TM) 1983-2005/Jul 20
(c) 2005 The Gale Group
File 47:Gale Group Magazine DB(TM) 1959-2005/Jul 20
(c) 2005 The Gale group
File 75:TGG Management Contents(R) 86-2005/Jul W2
(c) 2005 The Gale Group
File 636:Gale Group Newsletter DB(TM) 1987-2005/Jul 19
(c) 2005 The Gale Group
File 624:McGraw-Hill Publications 1985-2005/Jul 19
(c) 2005 McGraw-Hill Co. Inc
File 484:Periodical Abs Plustext 1986-2005/Jul W2
(c) 2005 ProQuest
File 613:PR Newswire 1999-2005/Jul 20
(c) 2005 PR Newswire Association Inc
File 813:PR Newswire 1987-1999/Apr 30
(c) 1999 PR Newswire Association Inc
File 141:Readers Guide 1983-2004/Dec
(c) 2005 The HW Wilson Co
File 239:Mathsci 1940-2005/Sep
(c) 2005 American Mathematical Society
File 370:Science 1996-1999/Jul W3
(c) 1999 AAAS
File 696:DIALOG Telecom. Newsletters 1995-2005/Jun 20
(c) 2005 The Dialog Corp.
File 553:Wilson Bus. Abs. FullText 1982-2004/Dec
(c) 2005 The HW Wilson Co

15/3,K/37 (Item 36 from file: 239)
DIALOG(R)File 239:Mathsci

01817121 STR 112502
A parallel stochastic method for the constrained concave global minimization problem.
Rosen, J. B.
Van Vliet, M. (University of Minnesota, Computer Science Department, 1987,
Language: English
TR 87-31.
Subfile: STR (Stanford Technical Reports)

Identifiers: **Bayesian** stopping rule Constrained global minimization Multistart technique **Parallel processing** Program speed-up

15/3,K/38 (Item 37 from file: 239)
DIALOG(R)File 239:Mathsci

01814812 STR 111582
Stochastically modelled natural phenomena in a parallel vectorized environment.
Koh, E.-K. (University of Illinois, Urbana-Champaign, Department of Computer Science,
1989,
Language: English
UIUCDCS-R-89-1492.
Subfile: STR (Stanford Technical Reports)

Identifiers: Thesis (M.S.) Computer graphics Fourier transform Fractal geometry Fractional **Brownian** motion **Parallel processing** Random midpoint displacement Terrian modeling Vector processing

25/3,K/6 (Item 6 from file: 88)

05331244 SUPPLIER NUMBER: 59608652
PIC Matrices: A Computationally Tractable Class of Probabilistic Query Operators.(Statistical Data Included)
GREIFF, WARREN R.; CROFT, W. BRUCE; TURTLE, HOWARD
ACM Transactions on Information Systems, 17, 4, 367
Oct, 1999
DOCUMENT TYPE: Statistical Data Included ISSN: 1046-8188
LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 13227 LINE COUNT: 01101

... dissertation (Turtle 1990), developed a probabilistic model for information retrieval formulated in terms of a **Bayesian** Network. The inference network is a general framework which makes possible the consideration of multiple...

...previously used in the INQUERY system.
2. INFERENCE NETWORK
The INQUERY inference network is a **Bayesian** Network (Charniak 1991; Kim and Pearl 1983; Pearl 1988) designed for supporting information retrieval. The...
...the proposition that the user's query is satisfied.
(Figure 1 ILLUSTRATION OMITTED)
2.1 **Bayes** Nets
In general, a **Bayesian** Network encodes a joint probability distribution. The nodes ...nodes. As a consequence of the conditional independence assumptions implicit in the topology of a **Bayesian** Network, once the probabilities, (p.sub.1), ... , (P.sub.n), have been produced for the...Alpha).sub.m+j) = ((Alpha).sub.m) + j(Delta) (inverted)Aj = 0, ... , s,
then, (inverted) **Ai** = 0, ... , s, (inverted)Aj = 0, ... , s - i:
(MATHEMATICAL EXPRESSION NOT REPRODUCIBLE IN ASCII)
In particular...matrices can be viewed as a generalization of the noisy or matrices often utilized in **Bayesian** Network applications.
(6) As mentioned in Section 4.3, a linear time version of the...

...1992. The INQUERY retrieval system. In Proceedings of the 3rd International Conference on Database and **Expert Systems** Applications 78-83.
CHARNIAK, E. 1991. **Bayesian** networks without tears. **AI** Mag. 12, 4 (Apr.), 50-63.
COOPER, W. S. 1994. The formalism of probability theory...and diagnostic reasoning in inference systems. In Proceedings of the 8th International Joint Conference on **Artificial Intelligence** (Karlsruhe, Germany) 190-193.
LEE, J. H. 1995. Analyzing the effectivness of extended Boolean models those produced by the PIC-EVAL algorithm, then (inverted) **Ai** = 0,1, ... , n,
(MATHEMATICAL EXPRESSION NOT REPRODUCIBLE IN ASCII)
PROOF. This lemma is proved by...

...arithmetic progression, there exists a simplified expression for the value of key elements of the **array** computed as part of the PIC-EVAL algorithm. In other words, if when the coefficients...

...can be effected as part of the PIC-EVAL algorithm.
LEMMA 1. Given a PIC **matrix** whose coefficients,
((Alpha).sub.m), ((Alpha).sub.m+1), ((Alpha).sub.m+2), ... , ((Alpha).sub...

...Alpha).sub.m+j) = ((Alpha).sub.m) + j(Delta) (inverted)Aj = 0, ... , s,

then, (inverted) **Ai** = 0, ... , s, (inverted)Aj = 0, ... , s - i:
(MATHEMATICAL EXPRESSION NOT REPRODUCIBLE IN ASCII),
PROOF (BY...

25/3,K/26 (Item 1 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

08013469 Supplier Number: 66164496 (USE FORMAT 7 FOR FULLTEXT)
Hummingbird Announces the Industry's First Data Mining Solution with Integrated Data Acquisition.
PR Newswire, pNA
April 25, 2000
Language: English Record Type: Fulltext
Document Type: Newswire; Trade
Word Count: 797

... features of Genio Miner include:
- Integrated data acquisition and cleansing functionality
- Enhanced Predictive Models
- Naive **Bayesian** with boosting
- Symbolic Nearest Mean(SNM) a variant of the K-th Nearest Neighbor
- LVQ (Learning **Vector** Quantisation)
- Multi-Layer Perceptron predictive model (**neural** **net**)
- **Fuzzy** **Logic**
- Clustering Methods
- Kohonen self-organised map
- Gaussian Mixture (Expectation Maximization)
- K-means
- Decision Trees including...

25/3,K/27 (Item 2 from file: 16)
DIALOG(R)File 16:Gale Group PROMT(R)

03879110 Supplier Number: 45575516 (USE FORMAT 7 FOR FULLTEXT)
FUZZY LOGIC AND FLEXIBLE CONTROL: Just how fit for control is fuzzy logic - how can neural nets help? What's available? What can it do for you?
Control and Instrumentation, p44
June, 1995
Language: English Record Type: Fulltext
Document Type: Magazine/Journal; Trade
Word Count: 2830

... time control, but can ideally sit in the background, gently governing the direction of a **fuzzy** logic controller (which is very fast) in the foreground.'

Neural **net** auto-tuning

In fact, with both Yokogawa's and Siemens' systems, tuning is currently by...

...line trial and error. Omron is among the few to have launched fuzzy systems involving **neural nets** - its 'third generation neuro-fuzzy' was introduced last year. And, the Math Works also introduced...

...the fuzzy sets. It harnesses fuzzy logic to capture knowledge and run the controls, while **neural nets** map the data to the output, and thus provide tuning. Basically, the nets learn from...unrealistic for these.

Fuzzy set theory, arguable traceable back to the 18th Century and Thomas **Bayes** (probabilistic reasoning), but actually defined by Prof Lofti Zadeh at the University of California in 1965 (although still virtually unused until the early'80s), softens all this. With **fuzzy logic** there's a grade of membership (GM) to a set - or several sets. So, both...

...rules convert your experience into a mathematical equivalent with which computers (or microcontrollers) can work.

Fuzzy logic rules are not difficult to write. They're intuitive and in English, like 'If the...

...you a graphical interface, letting you express the rules you identify in a fuzzy association **matrix** (FAM). In a single parameter controller, for example, the FAM covers the fuzzy error and...

...on the two axes. The outputs are then in the row and columns of the **matrix** . These outputs can be expressed either also as fuzzy variable (valve open, half open, half...

...when it comes to controlling systems that are poorly defined, non -linear or time-variable, **fuzzy logic** has a lot to offer - certainly more than PID! But, they can also cope better than many other advanced control alternatives - such as **expert systems** and model-based predictive systems which require precise treatment.

And, hence all the interest in...

25/3,K/36 (Item 1 from file: 275)

02163513 SUPPLIER NUMBER: 20507235 (USE FORMAT 7 OR 9 FOR FULL TEXT)
MindWizard 3.0: Inexpensive Expert System Creation.(Richter Paradigm Corp MindWizard 3.0 low-cost modeling program)(Product Announcement)
Gliedman, John
Computer Shopper, v18, n5, p381(1)
May, 1998
DOCUMENT TYPE: Product Announcement ISSN: 0886-0556 LANGUAGE: English RECORD TYPE: Fulltext
WORD COUNT: 992 LINE COUNT: 00084

... you get what you pay for. At $149, MindWizard is by far the least expensive **expert - system** program available that provides full support for OLE Automation. Using MindWizard, developers and programmers can easily build compact **expert systems** ranging from simpler models that incorporate their business-decision rules to highly sophisticated models. The...

...a bank uses to determine eligibility for a mortgage, complex shape identification programs that use **fuzzy logic** , or stock-market forecasting systems that incorporate **Bayesian** probability. And thanks to OLE Automation support, MindWizard models can process the data from a...
...dragging the mouse to the reasoning or output cell that receives the data.

MindWizard's **neural network** terminology takes some getting used to as well; MindWizard uses terms like "Threshold Potential Stimulus...

...Simulation programs such as the $700 Micrografx Optima 2.5 provide you with a rich **array** of tools for generating imaginary real-world data and help you experiment with ways of...

...from its lack of solid documentation, MindWizard does its job of fulfilling the needs of **expert - system** developers. What it lacks, like better built-in support for exchanging data with Excel and...

...add with a forthcoming, more expensive version. Meantime, MindWizard 3.0's greatest strength remains **expert systems** . Therefore, it can be strongly recommended to companies that are willing to spend time and...

25/3,K/37 (Item 2 from file: 275)
DIALOG(R)File 275:Gale Group Computer DB(TM)

02082890 SUPPLIER NUMBER: 19604310 (USE FORMAT 7 OR 9 FOR FULL TEXT)
Artificial intelligence gets real. (includes related articles on Bayesian probability, fuzzy logic and neural networks, where to find additional information) (Technology Information)
Plain, Stephen W.
Computer Shopper, v17, n8, p598(6)
August, 1997
ISSN: 0886-0556 LANGUAGE: English RECORD TYPE: Fulltext; Abstract
WORD COUNT: 3903 LINE COUNT: 00335

Artificial intelligence (AI) has been heralded as the next revolution in software by some experts in...of the brain by establishing recognition of particular inputs and producing the appropriate output. Neural **networks** are not "hard-wired" in a particular way; instead, they are trained using presented inputs to establish their own internal weights and relationships guided by feedback. Bayesian networks resemble **neural networks** in their causal nature and variable dependency. The probabilities in a Bayesian network are roughly analogous to the internal weights in a **neural network** . **Neural networks** , however, are free to form their own internal workings and adapt on their own.

A fuzzy system can use a **neural network** to adapt to the desired outputs of the end user or changing operating conditions. For...

...papers regarding Bayesian networks and probabilistic reasoning.

www.afit.af.mil/schools/en/eng/labs/ **ai** / **ai** .html

Air Force Institute of Technology **Artificial Intelligence** Laboratory. This site includes pointers to many disciplines of **AI** , including Bayesian networks.

ic-www.arc.nasa.gov/ic/projects/bayes-group

Bayesian Model-Based isis.ecs.soton.ac.uk/research/nfinfo/neural.html

A large collection of **neural network** resources.

```
Set     Items   Description
S1        218   PARALLEL()PROCESS? OR PROCESS?(3N)(SAME()TIME OR SIMULTANE-
                OUS? OR SYNCHRONOUS OR SYNCHRONI?E? ? OR SYNCHRONI?ING  OR SY-
                MMETRIC? OR SYMMETRY)
S2        175   (PLURAL? OR MORE()THAN()ONE OR MANY OR SEVERAL OR MULTIPLE?
                 ? OR MULTIPLICITY OR VARIOUS OR NUMEROUS OR MYRIAD OR SECOND?
                 OR 2ND OR PRIMARY OR THOUSAND? ? OR MILLION? ? OR HUNDRED? ?-
                )(3N)(CPU? ? OR PROCESSOR? ? OR PROCESSING()UNIT? ? OR MICROP-
                ROCESSOR? ?)
S3       2006   (NEURAL()(NET? OR SYSTEM? ?)) OR ((MACHINE? ? OR AUTOMAT? -
                OR COMPUTER? ?)()(LEARN? OR TRAIN? OR DECISION()MAKING OR INT-
                ELLIGENCE)) OR NEUROCOMPUT? OR EXPERT()SYSTEM? ? OR ARTIFICIA-
                L()INTELLIGENCE OR AI OR DECISION()SUPPORT()SYSTEM? ?
S4          0   (BROWNIAN)(2N)(EQUATION? ? OR FORMULA? ? OR THEOREM? ?)
S5          2   (BAYE?)(2N)(EQUATION? ? OR FORMULA? ? OR THEOREM? ?)
S6       8204   (CONVERT?R? ? OR CONVERT? ? OR CONVERTED OR CONVERTING OR -
                CHANGE? ? OR CHANGING OR TRANSLATE? ? OR TRANSLATOR OR TRANSL-
                ATING OR TRANSLATION? ? OR TRANSFER? OR TRANSFORM?)(3N) LANGU-
                AGE? ? OR C OR COBOL OR FORTRAN OR JAVA OR BASIC OR OBJECT()O-
                RIENTED OR PAS
S7         80   FUZZY()LOGIC
S8         27   (S1 OR S2) AND S3
S9         14   RD (unique items)
S10         2   (S1 OR S2) AND S7
? show files
File 256:TecInfoSource 82-2005/Jun
         (c) 2005 Info.Sources Inc
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5/5/2
DIALOG(R)File 256:TecInfoSource

00122700 DOCUMENT TYPE: Review

PRODUCT NAMES: Active Knowledge (769878); Portal-In-A-Box (747254)

TITLE: The Quest for Meaning: ...Autonomy Is Here.
AUTHOR: Silberman, Steve
SOURCE: Wired, v8 n2 p172(8) Feb 2000
ISSN: 1059-1028
HOMEPAGE: http://www.wired.com

RECORD TYPE: Review
REVIEW TYPE: Product Analysis
GRADE: Product Analysis, No Rating

Autonomy's ActiveKnowledge and Portal-in-a-Box, Oracle's namesake database, and Microsoft's Office and Excel are highlighted in a discussion of Autonomy's research and development efforts toward making computers understand context. Autonomy's research involves new software components using the math concepts developed by Thomas Bayes. According to founder Michael Lynch, Autonomy's goal is to be 'the Oracle of unstructured data.' Autonomy specializes in knowledge management and its ambitions are in personalized online services and the management of the exponential growth of information in text form. **Bayes ' formulae** allow computers to perform as if they were capable of context comprehension, generalization from words to an idea, and comprehension of the unspoken by understanding the root foundations of syntax. According to **Bayes ' theorem** , phenomena observed in the present (evidence) can be related to phenomena known to have occurred in the past (prior) and to ideas about what is going to happen (model). Doctors use Bayesian exercises in pattern recognition when they relate probabilities and beliefs to observations that are part of a knowledgeable judgment. Other software products in which Bayesian rules are used are Microsoft Wizards, Microsoft.com (in diagnoses of users' PC application problems), and Microsoft's continual computation, which anticipates a user's next action.

COMPANY NAME: Autonomy Corp Plc (629871)
DESCRIPTORS: Artificial Intelligence; Intranets; Natural Languages; Pattern Recognition; Portals; Text Retrieval
REVISION DATE: 20040130

00153461 DOCUMENT TYPE: Review

PRODUCT NAMES: LEARRN N (229772); fuzzyTECH (229784); Vindax (229796)

TITLE: Fuzzy logic and neural nets **: still viable after all these years?**
AUTHOR: Prophet, Graham
SOURCE: EDN Magazine, v49 n12 p69(4) Jun 10, 2004
ISSN: 0012-7515
HOMEPAGE: http://www.ednmag.com

RECORD TYPE: Review
REVIEW TYPE: Product Analysis

BAE Systemsk LEARRNN, Axenon's Vindax, and fuzzyTech from inform are highlighted in a discussion of the ways in which fuzzy logic and **neural nets** that can improve engineering design. BAE Systemsk LEARRNN and Nexus PDK are among components of a **neural network** that allow the use of design tools from Celoxica, an electronic design automation (EDA) vendor. fuzzyTech from Inform is a leading source in Europe of software-based technology for fuzzy logic system design. Several editions of fuzzyTech are available that provide a suite of analysis and editing functions for design of a comprehensive fuzzy-control system. LEARRN software uses a weightless-**neural network** method on **neural networks** that have only logic values, and Vindax is a processor the implementations a **neural - network** design to control complex and nonlinear systems on logic-based array of **parallel processing** elements. Fuzzy logic and **neural networks** remain useful in engineering design, and, although the two are fundamentally unrelated, they both offer control methodologies for handling extensively nonlinear or badly specified problems. They support circuit techniques and conventional computing that imitate human responses and abilities as a way to address various design engineer problems. Fuzzy logic, in spite of its name, does not indicate imprecision, but instead can return precise responses by allowing jsystems built around Boolean logic, handling binary values, to work with imprecisely defined values that you might express verbally as jmore,k 'less, 'high,' 'low,' and so on. Among topics covered are implementation of a fuzzy logic system; the purpose of neural

COMPANY NAME: BAE SYSTEMS (745634); INFORM GmbH (552003); Axeon Ltd (760005)
SPECIAL FEATURE: Charts
DESCRIPTORS: Fuzzy Logic; **Neural Networks**
REVISION DATE: 20050500

9/5/8
DIALOG(R)File 256:TecInfoSource

00128454 DOCUMENT TYPE: Review

PRODUCT NAMES: Neural Networks **(830078**

TITLE: Artificial Neural Networks
AUTHOR: Kay, Alexx
SOURCE: Computerworld, v35 n7 p60(1) Feb 12, 2001
ISSN: 0010-4841
HOMEPAGE: http://www.computerworld.com

RECORD TYPE: Review
REVIEW TYPE: Product Analysis
GRADE: Product Analysis, No Rating

An 'artificial **neural network** (ANN)' is defined as a 'means of processing complex data using **multiple** interconnected **processors** and computing paths.' Artificial **neural networks** can learn and analyze large and complicated datasets that cannot be processed with more linear algorithms. The first ANN was invented in 1958 by a psychologist who wanted to model the way in which the human brain processes visual data and learns to recognize objects. Artificial **neural networks** also can be used for other tasks, since their pattern-matching and learning abilities allow users to analyze many problems that are either very difficult or impossible to solve with standard computational and statistical methods. ANNs are often called simply **neural networks** , but the name comes from the biological brains from which they were first modeled. An artificial **neural network** creates connections among many separate processing elements, each of which corresponds to one neuron in a biological brain. The neuron receives many input signals and then uses an internal weighting system to generate one output signal that is usually sent to another neuron. ANNs learn in two separate ways, based on the problem to be solved. A self-organizing ANN (Kohonen) is exposed to more data and can find patterns and relationships. A back-propagation ANN is trained by humans to conduct particular tasks, and during training the teacher judges the correctness of the output.

COMPANY NAME: Vendor Independent (999999)
SPECIAL FEATURE: Charts
DESCRIPTORS: **Artificial Intelligence ; Expert Systems ; Neural Networks**
REVISION DATE: 20020830

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Set     Items   Description
S1        207   PARALLEL()(PROCESS OR PROCESSES OR PROCESSING) OR (PROCESS
              OR PROCESSES OR PROCESSING) (3N)(SAME()TIME OR SIMULTANEOUS? -
              OR SYNCHRONOUS OR SYNCHRONI?E? ? OR SYNCHRONI?ING  OR SYMMETR-
              IC? OR SYMMETRY)
S2        175   (PLURAL? OR MORE()THAN()ONE OR MANY OR SEVERAL OR MULTIPLE?
               ? OR MULTIPLICITY OR VARIOUS OR NUMEROUS OR MYRIAD OR SECOND?
               OR 2ND OR PRIMARY OR THOUSAND? ? OR MILLION? ? OR HUNDRED? ?-
              )(3N)(CPU? ? OR PROCESSOR? ? OR PROCESSING()UNIT? ? OR MICROP-
              ROCESSOR? ?)
S3        980   (NEURAL()(NET? ? OR NETWORK? OR SYSTEM? ?)) OR ((MACHINE? ?
               OR AUTOMATIC? OR AUTOMATE? ? OR AUTOMATING OR AUTOMATION OR -
              COMPUTER? ?)()(LEARN? OR TRAIN? OR DECISION()MAKING OR INTELL-
              IGENCE)) OR NEUROCOMPUT? OR EXPERT()SYSTEM? ? OR ARTIFICIAL()-
              INTELLIGENCE
S4          3   BROWNIAN
S5         43   BAYES OR BAYESIAN
S6        297   (CONVERT?R? ? OR CONVERT? ? OR CONVERTED OR CONVERTING OR -
              CHANGE? ? OR CHANGING OR TRANSLATE? ? OR TRANSLATOR OR TRANSL-
              ATING OR TRANSLATION? ? OR TRANSFER? ? OR TRANFERED OR TRANFE-
              RING OR TRANSFORM?? OR TRANFORMING OR TRANFORMATION)(3N) (LAN-
              GUAGE? ? OR CO
S7         80   FUZZY()LOGIC
S8          0   (S4 OR S5) AND (S1 OR S2)
S9         11   (S4 OR S5) AND S3
S10         9   RD (unique items)
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10/5/6
DIALOG(R)File 256:TecInfoSource

00142763 DOCUMENT TYPE: Review

PRODUCT NAMES: Indexing (836729)

TITLE: Auto-Categorization: Coming to a Library or Intranet Near You!
AUTHOR: Reamy, Tom
SOURCE: eContent, v25 n11 p17(5) Nov 2002
ISSN: 0162-4105
HOMEPAGE: http://www.onlineinc.com/econtent

RECORD TYPE: Review
REVIEW TYPE: Product Analysis
GRADE: Product Analysis, No Rating

This discussion of auto-categorization products defines the new type of program as software that assigns documents according to subject matter categories based on many techniques, including **Bayesian** analysis, clustering of documents based on similarities, advanced vector machines that represent every word and its frequency with a vector, **neural networks** , advanced linguistic inferences, use of pre- existing sets of categories, and seeding categories with keywords. Auto-categorization software started in the news and content provider area and is still most successful and sophisticated in that market. Many companies offer auto-categorization software, and most claim that their approach is the best, fastest, and most intelligent. The information profession has to evaluate the pluses and minuses of auto-categorization, which is not an easy task. Auto- categorization software provides metadata generation, or document categorization and keyword searching related to the category. Another feature provided by some vendors is noun-phrase extraction. A new market for auto-categorization is intelligence, with such companies as Stratify, H5Technologies, and Inktomi providing products. Among features needed by the intelligence industry is **Bayesian** statistics, but any presently used categorization method can be made better and more economical with the addition of auto- categorization software.

COMPANY NAME: Vendor Independent (999999)
SPECIAL FEATURE: Screen Layouts Charts
DESCRIPTORS: **Artificial Intelligence** ; Indexing; Intranets; Libraries; Natural Languages; **Neural Networks** ; Pattern Recognition
REVISION DATE: 20030228